



**ANNUAL
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REPORTS
1959-60**

**DIRECTOR OF AGRICULTURE
FISHERIES AND FORESTRY**

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ANNUAL DEPARTMENTAL REPORT
BY THE
DIRECTOR OF
AGRICULTURE, FISHERIES & FORESTRY
FOR THE
FINANCIAL YEAR 1959 - 60

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EXCHANGE RATES

When dollars are quoted in this Report, they are, unless otherwise stated, Hong Kong dollars. The official rate for conversion to pound sterling is HK\$16=£1 (HK\$1=1s. 3d.). The official rate for conversion to U.S. dollars is HK\$5.714=US\$1 (based on £1=US\$2.80).

Note: The weights and measures used in this Report are :

4.8 mows	=	1 acre
6 dau chung	=	1 acre
1 picul	=	133 lb.
1 catty	=	1.33 lb.
1 tael	=	1.33 oz.

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PART 1

POLICY

THE fundamental policy of the Agriculture, Fisheries and Forestry Department is the stimulation of maximum food production compatible with the optimum utilization of all resources available, whether on land or sea. Within this framework, the Department's aims are to increase the production and improve the economic status of individual farmers and fishermen; and to assist in improving the stability of the industries by encouragement of diversified production to mitigate the effects of seasonal market 'gluts' and trade recessions. Whilst developing increased production by the use of modern and improved scientific techniques, at the same time the Department ensures that aims are achieved without impairing soil fertility and reducing the productivity of fishing grounds available to the Colony. In the overall policy of land utilization, and the conservation of soil and water, the afforestation of bare and eroded hillsides and catchment areas plays a direct and important part.

ORGANIZATION

2. Under approved policy, research, extension, education, advisory, regulatory and administrative services are provided. Particular emphasis is placed on demonstrating the benefits of diversification as a means of improving the income, stability and nutritional level of small producers. By far the greater portion of the afforestation programme is undertaken directly by the Department; and farm forestry, afforestation by members of the public, as yet plays a relatively small part in the overall programme. Credit facilities are provided by the Government sponsored Kadoorie Agricultural Aid Loan Fund for farmers and the Mechanization Loan Fund for fishermen, both of which are administered by the Department. In addition, the Department provides technical advice and assistance to the Kadoorie Agricultural Aid Association, assists welfare organizations in establishing refugees as farmers, and assists in Government resettlement projects.

3. To preserve and improve health standards in both crops and livestock, and thus incidentally in the human population, the Department also undertakes certain specific regulatory functions as laid down by Ordinance.

4. The technical work of the Department is undertaken by four major and three minor divisions under the control of the directorate. The administration of the Department is carried out by secretarial, financial and general services also under the control of the directorate. There were no major changes in departmental organization during the year, although several minor changes were made to improve efficiency and strengthen co-ordination, especially in the extension services provided for the public.

PART 2

PRODUCTION—SURVEY OF INDUSTRIES

A. AGRICULTURE

Paddy

5. Although production dropped relative to the record yields of the previous year, an average crop of paddy was harvested despite the flood which occurred in mid-June during the first-crop paddy season. Prolonged drought conditions from mid-September to December (when the second-crop paddy was harvested) caused increased salinity and a marked drop in yield in the brackish-water areas. Some damage to the second crop was caused by 'blast'—*Piricularia oryzae*. The total harvest for both crops was estimated at 520,000 piculs (31,500 metric tons) which, on a milling percentage of 68%, is equivalent to 21,380 metric tons of clean rice. At prevailing market prices of \$31 per picul, first-crop paddy, and \$41 per picul, second-crop paddy, the value of the crop was estimated to be \$18,548,000 i.e. approximately \$3,723,000 lower than in the previous year.

6. Paddy production and monetary value over the past five years is recorded below and production by districts in Appendix 3:

TABLE 1

PADDY PRODUCTION—5-YEAR RECORDS

Year	Production (piculs)	Estimated Value ⁽¹⁾ (\$)
1955	464,013	18,752,000
1956 ⁽²⁾	442,152	17,686,000
1957	493,650	18,238,500
1958	545,628	22,271,000
1959	519,738	18,548,000

Notes: (1) Value calculated on ruling price of two crops fresh water paddy, one crop brackish-water paddy and one crop upland rice.

(2) Losses from typhoons.

Vegetables

7. Weather conditions in the summer of the year under review were very bad; sporadic and exceptionally heavy storms played great havoc with vegetable production. During the months of June to September, production dropped to only 25%—35% of normal. The main season for vegetables, however, is in the winter and spring and weather conditions, although inclined to be dry, were favourable. Temperatures remained relatively steady and there were no severe cold spells during this season. As a result of these favourable conditions throughout the main growing season, remarkable recovery was effected and not only was normal productivity resumed but the overall annual production for the previous year was exceeded. This improvement was assisted by an increased acreage under vegetable production. Annual production thus continued to rise and the increase, compared with the previous year, was 9,715 tons. There was a negligible increase in the market price received for vegetables. The comparative details of vegetable production are given in Appendices 4 and 5.

8. The steady increase in vegetable production is now having an effect upon the seed industry. Due to these effects and owing to a serious shortage of seed supply from China, the market price of seeds has exceeded previous records. In many cases the increase in value has been between 50% and 100% and even greater. Due to shortcomings from the traditional source of seed supply, there was an increase in seed imports, particularly of spinach, radish, cucumber and white cabbage seed, from alternative sources in Japan and Taiwan.

Fruit

9. Harvests of locally grown fruits were slightly above average. The yields of Wong Pei, Longan, Guava and many fruits, other than certain citrus, were higher than last year. The unusually dry weather in the latter half of the year occasioned a certain amount of fruit fall in certain citrus varieties, especially where water supplies could not be supplemented.

10. About thirty different species and cultivars of fruit are grown throughout the Colony and annual production is now valued at approximately \$3,136,000. Fruit commands a good and relatively stable price and there is considerable scope for expansion in production. Details are summarized in Appendix 6.

Flowers

11. The main flower growing centre of the territory is the Sha Tin Valley. This area suffered severely from flood damage in June 1959, and there was considerable crop loss. Silting was so bad in certain cases that rehabilitation was virtually impossible. Government assisted seriously affected growers and many were able to re-establish themselves elsewhere. Due to the setbacks occasioned in the Sha Tin Valley, there has been a natural and compensatory increase of flower growing in the Tai Po area which may well lead to its replacing the former as the main centre. The flower crops most seriously affected by floods were perennials, such as Ginger Lily, African Daisy and Tuberose; also affected were Gladioli and Asters. Flowers such as Carnations, Dahlias and Chrysanthemums, the season of which was over at the time of flooding, were not affected.

12. As usual there was a good demand at Chinese New Year both for potted plants and cut flowers. Due to the warm, dry weather, however, the more popular flowers, i.e.: Peach Blossom and Gladioli, matured earlier than usual and in advance of the Chinese New Year; thus they could not command best prices. Generally speaking the market price of flowers remained steady throughout the year. The demand for flowers continued to increase and this was reflected in a gradual and stable increase in production.

Export Crops

13. There are small, important markets overseas for preserved, dried, and otherwise processed fruits and vegetables. Twenty two separate items exported during the year are listed, with comparative data, in Appendix 7. Waterchestnuts, ginger, lychees and arrowhead account for some 83% of the total export crops, which are estimated to value \$2,811,979.

B. ANIMAL INDUSTRY

Pigs

14. During the last quarter of the previous year and in the first month of the year under review, market prices were exceptionally high and at times reached \$280 per picul. Livestock farmers were quick to take advantage of favourable prices with the result that stock retained for breeding purposes was depleted. Reduction in breeding stock was reflected in an almost 50% drop in sales during the first quarter. Over the year there was a gradual recovery and by March 1960, the pig population stood at its highest recorded figure, having increased by

some 50,000 head. From May onwards the market price remained steady and, based on average ruling prices, a conservative estimate of the value of pigs raised in the Colony and slaughtered for urban consumption was in excess of \$32,303,440. In addition allowance must be made for the value of pigs raised and slaughtered by farmers for home consumption; this figure amounts to an estimated further \$4,000,000.

15. There was a drop in the number of pigs raised in the Colony and which passed through licensed slaughterhouses. The number this year was 248,488 which represents 25% of the total slaughtered, 1,214,009, (see Appendix 9). Against this apparent reduction in local production for slaughter must be set the unusual circumstances obtaining in the first quarter of the year and the increased value of the final figures for pig population.

Poultry

16. The year under review was prosperous for poultry farmers and there was a remarkable expansion of the industry, especially in breeding establishments. Prices remained reasonably steady between \$4.50 and \$5.00 per catty, with the exception of a short period in September and October when the import of some 250,000 chickens from China caused market prices to drop to \$2.50 a catty. The average population, at any one time, of poultry up to the age of 3½ months was estimated to be 1,600,000 birds. Local poultry farmers raised three batches of birds during the year so that total production approximated to 4,800,000 birds. At the low average figure of \$8 per bird, the industry was estimated to have produced some \$38,400,000 worth of poultry meat during the year under review. These figures do not include stock retained for breeding purposes.

Eggs

17. In previous years the poultry industry has been dependent upon China for supplies of hatching eggs. Sporadic and ever decreasing supplies from this traditional source have resulted in increased prices. This in turn has stimulated an interest in alternative sources of supply and farmers, especially larger producers, are to an increasing degree undertaking the supply of their own hatching eggs. At the same time the collection of eggs from villages has developed hitherto untapped resources. During the first quarter hatching eggs commanded a good price at \$1 each but, as production and availability steadily rose, prices dropped and eventually levelled out at between 40c. to 45c. per egg. A quick survey of the industry revealed a marked increase in the

numbers of local type breeding stock now held. It was estimated that there were 148,000 local type birds being kept for breeding purposes. Allowing for the low production of eggs from this type of bird, seventy eggs per bird per year, some 10,360,000 eggs were produced. Of the latter, approximately 60% were sold for hatching purposes at an average market price of \$6 per dozen; the remaining eggs, largely infertile, were sold for an average price of \$1 per dozen. The total value of production was thus in excess of \$3,453,000. White Leghorn stock remained steady about the 20,000 mark and produced some 3,600,000 eggs. These, which sold at an average market price of \$3 a dozen, fetched an estimated \$900,000.

Cattle

18. A total of 3,246 cattle raised in the Colony were sold for slaughter during the year. This shows a marked decrease in comparison with the number of local cattle slaughtered in the previous year. The return from the sale of local slaughtered cattle was valued at \$1,558,080. The reduction in numbers of local cattle slaughtered reflects an improvement in overall farm economy and an increasing number of the smaller farmers now own a working animal. In previous years these farmers had to hire working stock during the ploughing seasons from larger and more prosperous farmers. The importation of cattle for slaughter once again broke previous records and increased by 10,819 to a total of 143,734 head of stock (see Appendix 9).

Milk

19. Locally produced milk passing through the four pasteurization plants totalled 12,450,225 lb., an increase of approximately 1,600,000 lb. over the previous year. At \$1 per pound for milk the value of this production was \$12,450,225. Further expansion of the industry is at present hindered by limitations of space which prevent the extending of dairy premises.

Ducks

20. Production, as in previous years, is mainly for home consumption and the steady rise reflected over the past five years continued. It was estimated that some 800,000 ducks were marketed locally at ruling prices averaging \$7 each; production was thus valued at \$5,600,000. Up to the year under review there has been a limited export market for preserved ducks, particularly to the United States of America. This export market was seriously affected by the prohibition of imports into U.S.A. and only 58,213 birds were examined and certified at

preserved duck factories compared with 103,831 birds during the previous year. Fortunately, the loss of the U.S. market was in part at least offset by the growing trade with South American countries. The actual volume of trade with South American countries is difficult to assess but it is undoubtedly increasing. The estimated value of the export trade, including that to South America, may be valued at \$1,500,000.

Duck Eggs

21. Although egg production continued to increase, the price of hatching eggs dropped from \$8 to \$5 per dozen. It was estimated that monetary returns for hatching and table eggs were in excess of \$445,000.

Geese

22. This industry showed rapid expansion during the year and it was estimated that 91,000 birds were marketed. Due in part no doubt to the increased numbers of birds becoming available, market prices dropped from an average of \$15 per head in 1958/59 to an average of \$10 per head during the current year. Nevertheless it was estimated that the value in production of table birds, hatching eggs and table eggs increased from \$864,000 last year to \$1,056,000 this year.

Pigeons

23. With very little competition from outside sources, pigeon raisers had a profitable year. Prices remained steady at an average of \$7 per pair of squabs and the 24,000 pairs of breeding stock were estimated to produce 118,000 pairs of squabs valued at \$826,000. This shows a remarkable increase in the trade compared with the previous year.

Quail

24. There was a slight recovery in the numbers of quail kept and production for sale was estimated at 9,050 valued at \$1 per bird. In addition an estimated production of 1,080,000 quail eggs at 80c. per dozen brought in a return of \$81,000.

Miscellaneous Animal Products

25. A considerable quantity of hides, hair, hoof, horn, feathers and other animal products are processed in the Colony either for local use or export. A good deal of this material comes from imported slaughtered stock, but there are also large quantities imported for processing and re-export. The export value of these miscellaneous products certified by the Department was \$22,845,698.

C. FISHERIES

Marine Fisheries

26. Weather conditions for fishing were quite good for both inshore and deep sea vessels except during the month of February 1960. There were only two typhoon scares, and the strong monsoon signal was hoisted only six times, during the year.

27. The year under review was a record year for landings. The total quantity of fish marketed, including fresh and salt/dried fish and shrimps, was 875,828 piculs valued at \$56,342,975 as compared with 736,928 piculs valued at \$51,315,478 for the previous year. Detailed figures concerning quantities, average wholesale prices and value of fish sold through the Fish Marketing Organization are reproduced, by courtesy of the Director of Marketing, at Appendix 13. Figures for the previous year are also included for comparison.

Pond Fisheries

28. This was a very satisfactory year for fish farmers of the New Territories. A certain amount of flood damage was caused by the abnormally heavy rains in June but losses were not serious and there was sufficient water to ensure that all ponds were kept at a satisfactory level throughout the rest of the year.

29. Production of local pond fish was approximately double that of the previous year, being estimated at 10,000 piculs (valued at \$2,400,000) as against 5,000 piculs valued at \$1,450,000. Imports of pond fish from China were received at the rate of approximately 300 piculs per day only and often falling off to as little as only 150 piculs a day, during the season.

30. As may be seen from the following table, prices remained high despite the increase in local production:

TABLE 2

		<i>Average price per picul (\$)</i>	
		<i>1959/60</i>	<i>1958/59</i>
Grey Mullet (below 1 lb. each)	...	130 - 220	130 - 200
Grey Mullet (over 1 lb. each)	...	220 - 400	220 - 400
Big Head	...	150 - 300	120 - 340
Silver Carp	...	110 - 300	110 - 300
Grass Carp & Bream	...	200 - 420	180 - 420
Mud Carp	...	160 - 280	120 - 280
Common Carp	...	150 - 320	100 - 300

Fish Fry Trade

31. No restrictions were imposed by the Chinese Authorities on the numbers and varieties of fry exported to Hong Kong and prices were reasonable. Some 14,125,500 fry of the various species of Chinese carps were imported from China and out of this quantity some 8,264,200 were re-exported to Taiwan, Singapore, Labuan, Phnom Penh and Calcutta.

Edible Oyster Industry

32. Total production amounted to 21,763 piculs (1,295.4 tons) of fresh oyster meat valued at approximately \$2,465,000, comparative figures for the previous year were 15,211 piculs (905.4 tons) valued at \$1,500,000.

33. The 21,763 piculs of oyster harvested were disposed of as follows:

TABLE 3

	<i>Fresh Oyster Meat</i> (Piculs)		<i>Dried Oyster</i> (Piculs)		<i>Oyster Juice</i> (Piculs)	
	<i>Estimated local consumption</i>	<i>For processing</i>	<i>Estimated local consumption</i>	<i>Export to U.S.A.</i>	<i>Estimated local consumption</i>	<i>Export to U.S.A.</i>
1/4/59 to 31/3/60	2,800	18,963	1,568	581	400	1,567
Total Production		21,763 (1,295.4 tons)		2,149 (128 tons)		1,967 (117.1 tons)
Approximate Value		\$2,465,000				

34. Prices obtained by producers for fresh oyster meat, and by processors for oyster products, were slightly higher than during the previous year. Details are recorded in the following table:

TABLE 4

<i>Oyster Product</i>	<i>Price (\$) per picul</i>		<i>Comparison</i>
	<i>1959/60</i>	<i>1958/59</i>	
Fresh oyster meat	100 to 120	80 to 110	Higher
Dried oyster	800 to 1,400	900 to 1,800	Lower
Oyster juice	420 to 550	420 to 540	About the same

D. FORESTRY

35. Over three quarters of the land area of Hong Kong is steep and mountainous; the natural vegetation is predominantly grass with scattered areas of scrub and scrub-like forest in the more remote and inaccessible areas. Most of the hill land is suitable for forestry and large scale re-afforestation is urgently required to check soil erosion, conserve water supplies and prevent serious flooding. Departmental policy is implemented by re-afforestation of the waste hill lands for the reasons given above and also to produce fuel and timber for local use; both by

the formation of Government forest reserves and by the encouragement of farm forestry by villagers. Progress in the afforestation was maintained during the year and over 2,000 acres were added to forest plantations which now cover nearly 12,000 acres.

36. Relative to the total consumption of forest products, local production is still negligible. This fact is in large part due to denudation of the Colony during the war years and the resultant relative immaturity of replacement stands. It will be several years yet before one can look to the afforestation programmes for tangible results and returns in the way of forest products. In the meantime, however, villagers collect a certain amount of return from the residual tree stands, as and where these occur. A considerable, but undetermined, amount of fuel is obtained by lopping the lower branches of pine trees on the hillsides around villages. This fuel is largely consumed locally and it is difficult to estimate its true value. During the year some 200 tons of timber were sold on permit for fuel purposes and realized approximately \$10,000. This is a marked reduction on the previous year when, due to a shortage of imported fire-wood, local felling was permitted on a much wider scale and realized a much greater return. Village camphor trees, felled periodically on permit as they became mature, yielded slightly more than \$18,000 which was largely absorbed in village amenity programming. Production from departmental forest reserves continues to be low due to the immaturity of stands. Forest produce at present is incidental, coming from thinning and other cultural practices. Sales of poles and fuel-wood, however, yielded approximately \$12,000. The production of Christmas trees for the local urban market remains steady and realized some \$13,400. The total known return, therefore, of forest products for the year stood at \$53,400.

E. SUMMARY OF PRIMARY PRODUCTION

37. At Appendix 2, the estimated value of farm, fish and forestry products are recorded in tabular form. Accurate statistics exist for vegetable and marine fish in the records of the Fish and Vegetable Marketing Organizations, for livestock passing through registered slaughterhouses, for milk produced in dairies and for export crops and other foodstuffs requiring certificates of origin. The value of the rice crop can also be assessed with some accuracy. The methods used in arriving at an assessment of other production include (i) departmental census figures available, (ii) information from producers, (iii) areas of land involved in crops and yield data, (iv) data from special surveys

and (v) analysis of prices, etc. These latter are considered to give a reasonable measure of the value of the primary production with which the Department is concerned.

38. Overall production for 1959/60 was valued at \$271,139,000 and showed a considerable increase on the record figures for the previous year. 1959/60 was an average year for paddy production and yields did not reach those achieved during the bumper cropping of the previous year. Although there was a 5% drop in paddy production, it must be remembered that not only were conditions not so favourable as in the previous year, but also that there was a decrease in the acreage of land under this crop. The maintenance of production, in spite of reduced acreage, was a noteworthy achievement and paddy farmers obviously benefited from the extension work of the Department. Vegetable crops showed a further rise of some 12%, occasioned both by increased production and increased acreage. Fruit production also showed a steady increase as more trees, previously planted but not previously cropped, came into bearing; fruit prices remained relatively stable. The total value of primary production from livestock continued to show impressive expansion from the previous year's figure of \$91,438,000 to the current total of \$102,582,000. There was a slight decrease in the value of pigs and cattle slaughtered but this was offset by increased stocking at the end of the year. The increase in poultry production was also very impressive and this industry made great strides during the year. Pond fish farming showed a notable recovery over the previous year and production improved by more than two-thirds. The steady upward trend in marine produce, fish, shrimps and oysters, partially reflected improved prices but also revealed improved production which more than offset the loss of the American market for fresh frozen shrimps. The marked drop in the value of forest products, as compared with the previous year, was due to a return to more normal conditions. A shortage of imported fire-wood and fuel during 1958/59 led to a tendency to overtap the fuel resources of the territory. In general, the year 1959/60 was most satisfactory from the viewpoint of the primary producer in Hong Kong.

PART 3

AGRICULTURAL DIVISION

Officer-in-charge: Vacant.

39. To achieve departmental policy objectives the Division provides two distinct, yet allied, services (1) the *Extension Service*, which main-

tains close and constant contact with and gives advice and assistance to the farmers of the territory and (2) the *Research Service*, which introduces, evaluates and finally hands over to the Extension Service tested and approved planting material and techniques which will be beneficial to the farming community. This latter service also investigates local farming problems brought to notice by the Extension Service. Both services are independent and interdependent having as a common goal maximum effectiveness in assisting the farming community.

40. This Division works in close collaboration with other Divisions and Services of the Department, and is more especially concerned with the Animal Industries Division for the incorporation of livestock into the overall farming pattern, with the Credit Service Section for improvement of the economic background of individual farmers, and with the Forestry Division for the integration of orchard and fodder crop production into the Forestry Lot system, now becoming better known as Farm Forestry.

THE EXTENSION SERVICE

41. For extension purposes the territory is divided into eight 'circles' each served by an itinerant Local Extension Officer. In certain cases and for the sake of administrative convenience, Extension Offices may be associated with an Experimental Station or Substation; nevertheless, the two entities function separately. The policies and programmes of work in the eight circles are co-ordinated under a Senior Extension Officer, who is of assistant professional standing, and who also controls project teams common to all districts, e.g. the Pest Control Team, the Emergency Irrigation Team, etc. The Senior Extension Officer works in close co-operation with the Senior Credit Officer and the Rural Education Officer, both of whom are also of assistant professional status.

(i) *Distribution of Improved Paddy Seed* ■

42. Improved seed from experimental stations was distributed by extension staff in accordance with a programme aimed at building up reputable, high-yielding strains in rice-growing districts. It is anticipated that, in time, the higher yields obtained on Experimental Stations will also be attained by farmers. This yield increment will be slow initially, since seed multiplication areas available to the Department are limited. As an increasing number of farmers take advantage of this facility, the momentum of progress should accelerate. 12,506 catties of seed of first crop varieties, Fa Loh Pak, Castle Peak No. 2, Early Size

Miu, Shek Kuk, Kam Bau Ngan and Chat Tam Chung, were saved for distribution; 10,159 catties of seed of the varieties Lo Shu Ngar, Wong Huk Chai Mei, Pak Huk Chai Mei, Fall Crop Sze Miu, Sam Sin Kuk, Kuk Tsai, Tai Lor and Heung Keng Lor were saved during the second crop period. Farmers purchase this seed through extension staff and, in many cases, are assisted further by loans from the Kadoorie Agricultural Aid Loan Fund.

(ii) *Paddy Production Demonstrations*

43. To educate the farmer to obtain better yields of paddy, the Extension Service lays out visual demonstrations of improved husbandry. All such operations are carried out by farmer co-operators under the guidance of field staff. Techniques demonstrated include the use of improved seed of varieties selected as most suitable for particular districts, fertilizer prescriptions and cultural operations evolved from investigational work. Throughout the growing period insect pests were controlled by insecticidal sprays. All operations demonstrated were within the attainment of, and by methods familiar in principle to, the farmer.

44. For the two crop seasons, twelve demonstration plots were laid down in six rice-growing districts. The variety Fa Yiu Tsai was used for the first crop, and Wong Huk Chai Mei, Lo Shu Ngar and Sze Miu for the second crop. In spite of floods in June, very satisfactory yields were obtained in all districts, except Ta Kwu Ling where the second crop was infected with 'blast' (*Piricularia oryzae*).

(iii) *Paddy Fertilizer*

45. The value of artificial fertilizers, as additions to traditional fertilizer procedures, is well appreciated by farmers as a means of improving rice yields. The economic implications of fertilizer use are less clearly understood and present an important problem to the extension worker. Points of importance that need continual emphasis are that dressings should not be excessive, should be applied as directed and only applied when other cultural considerations, such as adequate water supply, are fully complied with. Peasant farmers may fail to obtain satisfactory and anticipated results from the use of fertilizer, simply because cultural conditions are inadequate or because of the offsetting effects of uncontrolled pest and disease attack. In such cases, the farmer may well become discouraged and disheartened, tending to ignore further advice, thus the overall plan for improved production

suffers thereby. Extension workers, therefore, have an essential task in advising farmers when and how fertilizers should be used.

46. During the two crop seasons 433,080 catties of balanced fertilizer were distributed. This averaged a rate of forty catties per dau chung applied to 10,827 dau chung of paddy. The standard departmental paddy formula (11.67% nitrogen: 8.8% P_2O_5 : 4% K_2O) has been evolved from experimental experience of overall local conditions. The current cost of this fertilizer is \$9.60 per dau chung and purchasers are further assisted by means of loans. Under average local conditions, an increase of between half and one picul of paddy per dau chung was secured, i.e. \$18 to \$36 per dau chung; thus, farmers were assured of economic returns greatly to their advantage. The residual effects of fertilizer application should also be borne in mind to obtain a true evaluation of the economic situation involved.

(iv) *Vegetable Fertilizer Demonstrations*

47. As a result of improved accessibility in the Sai Kung area, there was a marked increase in the development of market gardening. In view of the comparative inexperience of potential market gardeners within the area, demonstrations were laid down on different vegetable crops comparing the use of artificial fertilizers, correctly applied, with traditional methods. These demonstrations, which were carried out at Tai Chung Hau and Ho Chung, showed marked yield differences between improved techniques and traditional methods. Yield increases, as a result of recommended procedure, varied from 23% to 150%. Using traditional methods fertilizers cost \$49 per dau chung, and using the recommended techniques with artificial fertilizers the cost is \$65.70 per dau chung.

(v) *Insecticide Demonstrations*

48. Twelve demonstrations were laid down throughout various vegetable growing areas with a view to encouraging the use of effective insecticides relatively safe to man. These demonstrations were carried out at Fanling, Sheung Shui, Tai Po, Sai Kung, Lam Ti, Kam Tin, Sha Tin, Tung Chung and Mui Wo. The demonstrations were carried out in co-operation with certain of the major insecticide importers who supplied insecticides free of charge. Similar demonstrations were conducted at fifteen schools throughout the vegetable producing areas. 10,000 copies of a pamphlet on 'Vegetable Insecticides' were distributed free to farmers to supplement the effectiveness of the demonstrations.

(vi) *Water Pumping Service*

49. During dry periods the emergency water pumping service, part of the Extension Service, was busily engaged in providing water from streams, water sumps and pools for paddy, vegetables and fish ponds. As in previous years demands were heaviest from the Castle Peak and Ping Shan areas. A total of 259 dau chung of paddy land and nurseries were irrigated during April and May, the planting and transplanting season of paddy; 1,609 dau chung of vegetable and paddy land were irrigated between October 1959, and March 1960; and water was supplied to 246 dau chung of fish ponds. A total of 818 applications for assistance were received from forty two villages and pumps were in operation for a period of 3,750.5 hours.

(vii) *Crop Pest and Disease Control Service*

50. This service gave assistance to 119 farmers and visited thirty villages to render both assistance and instruction. A total area of 1,094.4 dau chung, including 988.9 dau chung of paddy, 16.5 dau chung of vegetable and ninety nine dau chung of miscellaneous crops, were sprayed. This represents a marked decrease in the work carried out in the previous year and was occasioned by the implementation of policy whereby farmers, particularly market gardeners, were encouraged to own and use their own sprayers and insecticides. The Kadoorie Agricultural Aid Association gave this policy great stimulus during the year by the free distribution of some 4,621 sprayers to deserving farmers, including members of Co-operative Societies. Farmers also obtained loans from the Kadoorie Agricultural Aid Loan Fund for the purchase of sprayers and/or insecticides.

(viii) *Distribution of Planting Material*

51. With a view to improving and increasing the amount of planting material available to the farming public, selections of proven stock were multiplied for distribution. During the year under review, 127,321 vegetable seedlings; principally selections of local Chinese kale, white cabbage and flowering cabbage; and 8,970 fruit trees of twelve different types were distributed to farmers.

(ix) *Crop Compensation*

52. Crops, on land resumed for various reasons, were assessed in various rural areas throughout the New Territories. Assessment was made in sixty five rural locations and amounted to \$305,267.86. In the

urban area cultivation clearance compensation was assessed at forty seven locations and amounted to a total value of \$458,789.62.

(x) *Resettlement*

53. During the year, visits were made by officers of the Department to areas where refugee farmers had been settled with the assistance of Church Welfare Organizations. Particular attention was paid to areas of poor soil fertility such as Cheung Sheung, Nam Shan, Luk Wu, Siu Tong and Chek Lap Kok where the settlers had reached the end of the eighteen-month subsidy period granted by the organization. Assistance took the form of advice on various agricultural matters, the supply of planting material and, in certain cases, the recommendation of loan facilities. Progress has been particularly noticeable at Siu Tong. In the areas mentioned above, forty five families (233 people) are at present cultivating 181 dau chung of land. In addition at Shan Shek Tsun, including Sum Wat Village, thirty seven families (124 people) are cultivating forty two dau chung of paddy, 114.5 dau chung of vegetable and nine dau chung of fruit trees. These people, the majority of whom were employees of the company formerly mining wolfram above Sha Lo Wan Village, have settled in the area during recent years. Regular visits from the Local Extension officer have led to general improvement of their situation. Encouragement has been given to the growing of fruit trees and advice has also been given to improve and increase pig and poultry production. At Tai Long Wan an area has been set aside for the resettlement of Fan Pui villagers from the Shek Pik Valley, now taken over for a Reservoir. Development of the resettlement area proceeded according to plan, and a 'demonstrator' has been specially assigned to assist villagers in their resettlement.

(xi) *Advisory Services*

54. Apart from the specific items mentioned above, local extension staff have undertaken routine, but unspectacular, advisory work on all aspects of farming including insect control, orchard management, paddy and vegetable culture, farm management, irrigation problems and land development.

THE RESEARCH SERVICE

55. The research service of the Division is divided into four major sections, each dealing with a separate but integral portion of plant

industry. Each section is under the immediate supervision of an assistant professional officer. The sections are as follows:

- (a) Agronomy—including rice, field and fodder crops.
- (b) Market garden crops—including vegetables and flowers.
- (c) Fruit—including both tree crops and others.
- (d) Crop pests and diseases.

56. The year under review was a year of transition during which gradual reorganization of departmental stations generally was undertaken to allow a more particular and specialist approach to develop. Investigational work continued at five major stations and three substations; of the foregoing by the end of the year two major stations and one substation were placed under the administrative control of the Animal Industries Division as being more particularly concerned with the major aspects of investigational work carried out therein. The remaining stations, Market Garden Experimental Station, Sheung Shui; High Altitude Experimental Station, Tai Mo Shan, Crop and Forestry Experimental Station, Tai Lung; and two substations, were under the administrative control of the Agricultural Division.

(A) PADDY RESEARCH

Multiplication of Stock Seed

57. Stock seed of improved varieties was planted at Castle Peak to produce bulk seed for distribution to farmers. The 'blast-resistant' variety Fa Yiu Tsai yielded 3,400 lb. per acre during the first-crop season. In the second-crop season, the variety Sam Sin Kuk yielded 4,136 lb. per acre, compared with 3,328 lb. per acre in 1958. The variety Wong Huk Chai Mei grown under favourable conditions also yielded very highly at 3,864 lb. per acre.

58. On the basis of these results, Fa Yiu Tsai in the first season followed by Sam Sin Kuk in the second season gave yields of 3.36 long tons or 7,536 lb. per acre per annum.

Variety Trials

59. *First Crop* (eighteen varieties; six randomized blocks each containing eighteen plots)

A strain of the variety Fa Loh Pak, from Wan Toi Shan, gave the highest yield this season. Varieties Shun Yee Pak, Castle Peak No. 2 and Kam Bau Ngan also yielded well. All of these varieties are being multiplied for distribution.

60. *Second Crop* (twenty four varieties; six randomized blocks each containing twenty four plots)

Owing to the earliness of the dry season, the drought resistant varieties Kong Chim, Pak Sap Yet, and Hong Lo Chim showed up well. The 'blast-resistant' varieties Fall Crop Sze Miu, Lo Shu Ngar and Pak Huk Chai Mei gave fairly high yields. The late-maturing varieties Ham Moon, Tai Lor, Cha Tsai, Heung Keng Lor and Tai Woh Kuk, and the 'blast-susceptible' varieties, such as Kuk Tsai, did not yield well. Persistent low yielders were discarded from multiplication plots.

Exotic Rice Variety Trials

61. On the advice of the F.A.O. Regional Rice Officer, further seed samples were obtained and planted at Castle Peak. The samples comprised five *Japonica* rices, namely Taichung No. 1 from Formosa and K.O.A., Chiala 1, Frost and I Kong Poa from Thailand; and eight *Indica* rices, namely B76, T1145 $\times$ Satika, N135 from East Pakistan; TKM6 from India; and C013 $\times$ C025, G.S. 337 and S.R. 26B from Thailand.

62. Observational trials to date have given the following results:

(a) Japonica Varieties

Of the five subtropical rices, seeds of I Kong Poa failed to germinate. The variety Taichung No. 1 yielded 3.096 lb. per acre during the first crop season. In the second crop season, varieties K.O.A., Chiala 1 and Frost showed no improvement over a standard indigenous variety, Lo Shu Ngar.

(b) Indica Varieties

The varieties B76, T1145 $\times$ Satika, N136, TKM6, C013 $\times$ C025, G.S. 336, G.S. 337 and S.R. 26B were received too late for planting and seed was retained for the coming season. The variety, S.R. 26B, is a brackish-water paddy of better quality than the local variety, Ham Moon.

Interaction between Varieties and Fertilizers

63. Previous research has demonstrated that, generally throughout the territory, paddy responds to dressings of nitrogen but there is no marked response to either phosphorus or potash. It has also been confirmed that heavy applications of nitrogen tend to produce excessive vegetative growth, encourage lodging and increase susceptibility to infection by 'blast', *Piricularia oryzae*. Information on the interaction between differing paddy varieties and fertilizers has been lacking how-

ever, and, to resolve certain undetermined issues, suitable statistical trials were initiated in 1958.

64. Experiments continued for a second year at Castle Peak, and were carried out in both crop seasons. The design was split plot with four main-fertilizer-treatments and ten sub-variety-treatments; main plot size 10' × 25'; sub-plot size 2.5' × 10'. Fertilizer treatments were; Control—no nitrogen; 30 lb. nitrogen per acre; 60 lb. nitrogen per acre; and 90 lb. nitrogen per acre. Nitrogen was applied in the form of Ammonium Sulphate. A standard treatment of 30 lb. of P_2O_5 , as Superphosphate, and 15 lb. of K_2O , as Muriate of Potash, were applied to each plot.

65. *Results—First Crop 1959.* The ten varieties tested gave marked responses to nitrogen up to 60 lb. per acre. This compares with previous years' results when responses continued up to the 90 lb. per acre level. As in the previous year, the variety Kam Bau Ngan produced the highest yield. Varieties Castle Peak No. 4, Castle Peak No. 2, Shek Kuk and Fa Yiu Tsai clearly gave positive responses with the increasing fertilizer application up to the 60 lb. per acre level. The responses of the early maturing varieties, namely Early Sze Miu, Chan Chu Cho, Leung Cho Kuk, and Chat Tam Chung, tended to be obscured by damage to plots occasioned by the heavy rains in mid-June.

66. *Results—Second Crop 1959.* The dry season set in early and thus affected growth. As to be expected, the drought resistant variety Hon Lo Chim gave the highest yield and showed a marked response to nitrogen at the 30 lb. per acre level. Late-maturing varieties Tai Lor and Heung Keng Lor gave low yields. In view of the seasonal effects, the experiment will be continued.

Effect of Continuous Applications of Ammonium Sulphate in Paddy

67. Investigations into the use of nitrogen, in the form of both Urea and Ammonium Sulphate, were continued into the second year. At Castle Peak Ammonium Sulphate had been used continuously since 1955 and on the farm plots at Sheung Shui Wai no Ammonium Sulphate had been used prior to the trial being initiated.

68. The experiment was carried out in both crop seasons and consisted of five randomized blocks each containing six plots. Treatments were: Urea and Bone Meal; Urea and Superphosphate; and Ammonium Sulphate and Superphosphate. The fertilizers were mixed to give standard dressings of 40 lb. nitrogen and 30 lb. P_2O_5 per acre.

69. *Results.* In the previous year investigations were confined to the second crop of paddy and thus observations were recorded for the first time of effects upon first crop varieties. In neither season were significant yield differences noted, although Ammonium Sulphate appeared to be superior to Urea. There is no appreciable difference between the response to Superphosphate or Bone Meal in the presence of Ammonium Sulphate, but Ammonium Sulphate and Superphosphate tended to give higher yields than Urea plus Bone Meal.

Fertilizer Trials on Typical Rice Soils

70. Experimental work on the fertilizer requirements of rice has been conducted on departmental stations since 1950. The Soil Survey confirmed previous suspicions, first put forward in 1953, that these soils are not truly representative of several of the more important rice soil types. In consequence since 1958 experimental work on fertilizer requirements of rice has been replicated on major soil types not available within stations. Suitable sites have been selected for these field trials and the chosen locations rented. The lay-out and results of these trials are recorded in Appendix 8.

Paddy Seed-Dressing Trials

71. A simple randomized block experiment was laid down to test the effects of seed-dressing with *Agrosan 5 W* (a compound containing 5% of organically combined mercury) in the control of *Piricularia oryzae*. Two rice varieties; Fa Loh Pak, first crop and Wong Huk Chai Mei, second crop; very susceptible to 'blast' were selected. A straightforward comparison was made between untreated seed and seed treated with *Agrosan 5 W* in the ratio of 1 to 200 by weight applied one week prior to sowing. An appreciable increase in the yield of paddy was obtained from treated seed.

72. A simple trial similar to the above was also carried out to compare the relative effectiveness of 'Harvesan', 'Boots 1833' and 'Boots 1834' (or organo-mercury compounds) in the control of *Piricularia oryzae*. The control was confined to the second crop and the susceptible variety Wong Huk Chai Mei was used. Experimental design was of the randomized block type and a straightforward comparison was made between untreated control and the three proprietary compounds as recommended by their makers. All seeds were treated one week prior to sowing. No appreciable increase in yield was recorded from treated plots and, in point of fact, it was noted that 'Boots 1834' had a tendency to depress yield.

(B) MARKET GARDEN RESEARCH

73. The main centre for research and investigational work is Sheung Shui, Market Garden Experimental Station. Very briefly the various programmes of work include the production of seed from selected up-graded local vegetable varieties; fertilizer, cultural and varietal trials with indigenous and introduced vegetables; and investigations into the use of ancillary aids to the industry such as insecticide, fungicide and hormone treatments. Preliminary work on floricultural investigation was started during the year.

Indigenous Vegetables

74. In spite of a large number of varieties, there are virtually no accepted standards for the selection of local vegetable seed and planting materials; and as a natural corollary most of the so-called varieties are, in point of fact, admixtures. This situation is vitiated further by the fact that most of the more important local vegetables belong to the Cruciferae and Cucurbitaceae, which are all too easily cross-pollinated. Seed growers do not control pollination, thus there is not even a most elementary form of plant breeding and as a result seeds do not remain true to type. The selection of, and deliberate breeding for, high grade local seed is therefore a matter of primary importance and a subject to which the Department devotes an increasing amount of time and effort. The following comments record a brief summation of achievements to date.

Spinach (Spinacia oleracea)

75. One particular cultivar, selected over several generations, has gained the confidence of local farmers to such a degree that it is no longer possible to meet demands for seed. During the year selective breeding provided 516 lb. of seed available for distribution.

Chinese Flowering Cabbage (Brassica chinensis) (Paak Tsoi Sum)

76. Varieties are classified on maturation period, i.e.: 40, 50, 60 and 80 day cultivars. Nine varieties have been collected from various sources but results to date have not been very encouraging. Selection continues.

Chinese White Cabbage (Brassica chinensis) (Paak Tsoi)

77. Four selections were maintained and, of these, two gave particularly encouraging results. One of the cultivars, 'milky white', which is typically dwarf and spreading in habit with broad, short, white

petioles, gave high yields of good quality, small plot yield equivalents were as much as 99,000 lb. per acre. The second cultivar, which is erect in habit with long white petioles and fan-shaped leaves, was not only vigorous in growth but showed resistance to the warmer weather. Small plot yields from the second variety were as high as the equivalent of 138,000 lb. per acre. The yields of these two varieties compared very satisfactorily, even allowing for small plot distortion factors, with average crop production which varied between 40,000 and 64,000 lb. per acre. Selective breeding of the two cultivars continues.

Other Local Crops

78. Cultivars of many other local vegetables, including Chinese kale, (*B. oleracea* var. *acephala*) (Kai Laan Tsoi); garland chrysanthemum, (*Chrysanthemum coronarium*); water spinach, (*Ipomoea reptans*); Chinese spinach, (*Amaranthus* spp.); Chinese lettuce; and Chinese radish; were collected for preliminary observation and selection.

Observations on Introductions

79. *Tomato Variety Trials*—A simple observational trial was laid down with fourteen varieties introduced from the United Kingdom and the United States of America. Weather and growth conditions were favourable and all varieties did well. Two wilt resistant cultivars from U.S.A. attracted attention; these were 'Manalucie' and 'Indian River'. 'Manalucie' has scarlet, oval fruit, medium to large in size and very firm and juicy, under trial conditions yields were 36,798 lb. per acre. 'Indian River' produced good quality fruit of the more conventional shape and yielded well at 34,398 lb. per acre. The average yield of all varieties in the trial was 28,800 lb. per acre. Other cultivars which did well were U.K. varieties 'Best of All' and 'Harbinger'.

80. *Tomato Introductions from Hawaii*—Seven varieties, notable for their high degree of resistance to bacterial and virus infection, were received from Hawaii for observation. Results were disappointing as fruit was irregular in shape and rather coarse in appearance. Late maturity, a month slower than the cultivars referred to in paragraph 79 above, also reduced value. It is not proposed to continue further with these varieties unless the disease situation deteriorates.

81. *Tomato Fertilizer Trial*—A sea-weed by-product known as 'Sea Magic' was applied, as per manufacturers' instructions, to observe responses. Although two recommended methods of treatment were used, no significant response was recorded.

82. *Carrots*—All varieties under trial did well, during the cooler winter season, whether short-rooted, long-rooted or intermediate. Trends indicated that the broad, well-shouldered varieties, such as 'Chanteney' and 'Goldinhardt', are losing popularity in favour of the smooth, cylindrical, intermediate varieties such as 'Nantes'.

83. *Peas*—This crop was particularly sensitive to climatic conditions and powdery mildew was a serious problem in warmer weather. The principal season continues to be during the cooler winter weather and short-term, dwarf varieties, such as 'Progress No. 9', 'Laxton Progress' and 'Thomas Laxton', were most suitable. The later and taller varieties, such as 'Alderman', gave very poor results. Dwarf varieties were most popular amongst local growers, and especially short-term cultivars which could command preferential market prices early in the season.

84. *French Beans*—The following eight cultivars were placed under trial during the main growing season:

- (a) *Flat pod*: 1. 'Plentiful', 2. 'Bountiful', and 3. 'Canadian Wonder'.
- (b) *Round pod*: 1. 'Tendergreen', 2. 'Tender Best', and 3. 'Contentender'.
- (c) *Yellow pod*: 1. 'Sure Crop', 2. 'Stringless Wax', and 3. 'Brittle Wax'.

'Tender Best' gave the highest yield at 7,704 lb. per acre; 'Canadian Wonder' and 'Bountiful' were also encouraging. It was noted that the round pod varieties yielded better at higher elevations.

85. *Cauliflowers*—Experience having proved that the later-maturing varieties do not readily form heads under local conditions, selections were limited to early varieties grown throughout the cool season. The early Snowball cultivars have established themselves as most suitable and trials were carried out on eight varieties introduced from the United Kingdom and the United States of America. There was little to choose between varieties but the following recommendations were made in relation to the time of harvesting:

- (a) for early crop (94 - 102 days) either 'Early Snowball A' or 'Sutton's Perfection'
- (b) for main early crop (103 - 119 days) either 'Snowball M' or 'Improved Snowball'
- (c) for third early crop (120 days and longer) 'Snowball E', 'Y' or 'X', or, 'Burpeeana'.

86. *Cabbage*—Emphasis was placed on selections for early varieties which command a preferential market price over main and late crops. Recommended varieties for early cropping (80 to 90 days) include 'First Crop', 'Copenhagen Market', 'Golden Acre' and 'May Express'. Recommended varieties for main and late cropping (120 to 150 days) include 'O-S Cross', 'Perfection', 'Knover Globe' and 'Emperor'.

87. *Lettuce*—Selections concentrated on the local market preference for the crisp, compact, and tender type cultivars rather than the heavier-yielding loose-leaved varieties. During the year under review the season was not entirely favourable but, nevertheless, observations indicated that 'Imperial 847' and 'Great Lake' remained the most satisfactory and popular varieties.

88. *Flowers*—Investigations were still in the preliminary stage during the year and work was principally directed towards the collection of a suitable range of cultivars within different species. Fifty rose varieties were imported from Holland and established well. Immediately promising results were obtained from varieties 'New Yorker', 'Peace', 'Lady Sylvia', 'Reginald Ferneyhough', 'Sunset', 'Ena Harkness', 'M. Molier' and 'Buccaneer'. Propagation continues. One of the more important and popular flower crops grown in the territory is chrysanthemum and twenty varieties were collected and multiplied for observation, selection and trial. Collections were also started for most of the other popular flower crops so that more detailed trials can be undertaken in future.

(C) FODDER AND COVER CROP RESEARCH

Legumes

89. The following species were received from Sierra Leone and established in observation plots:

- (a) *Townville Lucerne (Stylosanthes gracilis)*—This established well and withstood the dry winter conditions, growing vigorously when the weather became warm and humid.
- (b) *Pigeon Pea (Cajanus cajan)*—This edible legume, which is particularly drought resistant, established well, flowered and set seed.
- (c) *Tropical Kudzu (Pueraria phaseoloides)*—Although establishing slowly this crop showed great promise, persisting into the drier weather and in spite of competition.

90. Trials with previously introduced legumes continued. Of these Velvet Bean (*Mucuna capitata*) confirmed previous promise as being most useful.

Fodder Grasses

91. The following species of fodder grass were introduced and established on observation plots. Seeds of Scrobic Grass (*Paspalum scrobiculatum*) failed to germinate.

- (a) *Signal Grass (Brachiaria brisantha)*—This established well and was easily propagated vegetatively. A very promising tufted, grazing grass which continued to grow during the dry weather.
- (b) *Guinea Grass Sigor K52530 (Panicum maximum)*—This established well, was easily vegetatively propagated, well liked by stock and grew vigorously well into the dry season.
- (c) *Coloured Guinea Grass K52490 (Panicum maximum)*—Establishment and growth were both slow. It did not propagate readily vegetatively.
- (d) *Thin Napier (Pennisetum polystachyon)*—Established well from both seed and cuttings. Growth was vigorous and early; continuing into the dry season. Palatability best during early stages of growth. A promising soiling grass.
- (e) *Guatamala Grass (Tripsacum laxum)*—Established well. Did not flower but readily propagated vegetatively. Broad-leaved and robust, the herbage was most palatable when young. A useful soiling grass.
- (f) *Mauritius Grass (Brachiaria mutica)*—Established well, particularly from cuttings; did not flower. Well able to withstand dry weather and very acceptable to stock.
- (g) *Rhodes Grass (Chloris gayana)*—Little to choose between two strains Endeless K50193 and Mbarara K53166; both grew well under moist conditions but made little growth during drier and colder weather.
- (h) *Pangola Grass (Digitaria decumbens)*—Established well and grew vigorously in the wet, warm summer but lacked ability to grow during drier weather. Given suitable conditions, a promising pasture grass, well liked by stock.
- (i) *Blue Panic (Panicum antidotale)*—Establishment and growth were both slow. Not liked by stock owing to dry, unattractive nature of herbage.
- (j) *Alabang X (Andropogon nodosus)*—Although established did not grow well in the drier weather. Palatability poor and preliminary observations not encouraging.

(D) PLANT PEST AND DISEASE RESEARCH

92. The seasonal incidence of plant pests and diseases was recorded and the life histories of the more important were studied in relation to control measures, with a view to increasing efficiency of the latter. More evidence accrued to show the resistance of the paddy variety Lo Shu Ngar to 'blast', (*Piricularia oryzae*). 'Blast' lesions were found on this variety but yield was not affected. Fungicidal treatment of rust on chives was disappointing in effect and requires closer investigation. In a comparative trial, using eight different insecticides for the control of Pine Caterpillar (*Dendrolimus spectabilis*), Agrocide 26 D.P. gave complete control at a cost of \$12.30 per acre. Other trials indicated that Stink Bug (*Tessaratoma papillosa*) could be controlled on lychee at a cost of \$3.31 per tree to protect and save 100 lb. of fruit valued at approximately \$50; where Rice Stem Borer (*Schoenobius incertellus*) occurred treatment with Endrex showed a nett increase of \$63 an acre.

(E) HIGH ALTITUDE RESEARCH

93. Investigations were carried out both at Tai Mo Shan and Pak Ngau Shek. The highest station is situated at 2,000 ft. above sea-level. Details of history to date have been given in preceding annual reports. Briefly the objects are to investigate the offsetting and mitigating of seasonal effects on crops due principally to the hot, humid summer. At the same time extension of environmental range of cropping is being explored to enable improved land utilization at higher levels. Fruit trees continue to improve each year and there can be no doubt about the feasibility of growing fruit at high elevations, provided certain principles are adhered to. The three types of tea, namely (a) the Chinese small leaf, (b) the Japanese small leaf, and (c) Koon Laan big leaf, continue to do well but variations are appearing which may lead to the establishment of more detailed cultivar selections. Plantings were extended. Vegetable investigation was increased in scope during the year and varietal recommendations can now be made in many cases. It is interesting to note that tomatoes may be cropped between 2½ and 3 months earlier than at lower elevations and that the cabbage variety 'Utility' is particularly well adapted to this location. Seeds selected and multiplied in isolation at high level have done well and, in particular, bean seed multiplied over several generations has shown no sign of deterioration.

(F) DRY LAND RESEARCH

94. The Ta Kwu Ling Experimental Station is situated in a drier belt of country where farming practice is limited by environmental conditions. Here local problems are examined and suitable methods investigated for the improvement of farming economy by the introduction of new crops and techniques, particularly with a view to converting production into animal products. Investigational work continued as outlined in previous annual reports. This station is still in the establishment and evolutionary stage and it is yet early to evaluate results.

PART 4

ANIMAL INDUSTRIES DIVISION

Officer-in-charge: Mr. D. M. CORBETT, M.R.C.V.S., M.R.S.H.—
Senior Veterinary Officer

95. The activities of this Division continued to expand with the increasing demands for advice and assistance received from livestock owners throughout the territory. To achieve policy objectives the Division provides three inter-related services: (i) the *Extension Service*, which provides specialist advice and extension work on animal husbandry, and also undertakes disease control and prophylaxis, (ii) the *Research Service*, which investigates, resolves and evaluates animal husbandry problems prior to the adaptation of results for extension purposes, and (iii) the *Regulatory Service*, which undertakes the enforcement of health requirements and inspectorate services required by Ordinance.

EXTENSION SERVICE

96. For extension purposes the territory is divided into circles comparable with those of the Agricultural Division. Livestock Extension Officers are responsible for diagnosing, reporting and treating outbreaks of disease; carry out routine extension work in respect of preventive treatment, animal husbandry generally and also undertake periodic surveys and special investigations as required. There are two officers who specialize in poultry management and disease control.

Livestock Census

97. A census of the livestock population of the New Territories made during the last quarter of 1959 revealed the following data compared with the previous year:

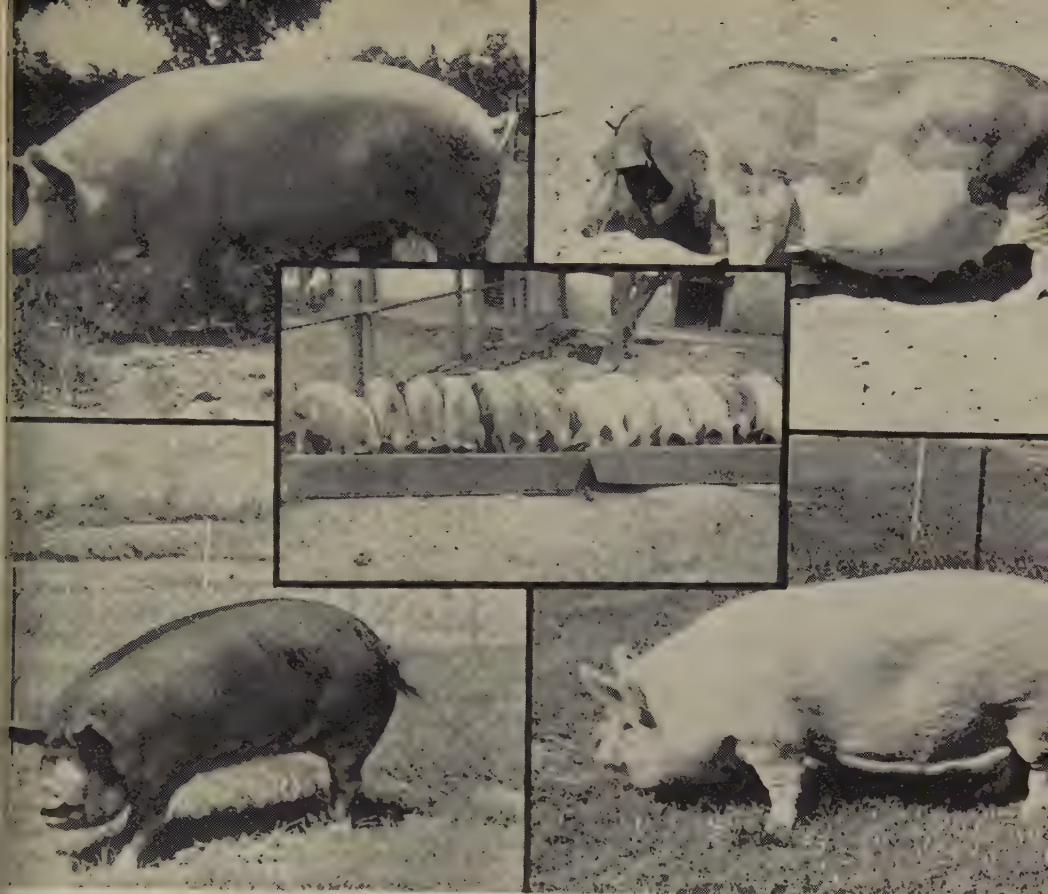
TABLE 5

		1959/60		1958/59	
Dairy Cattle	..	2,979		2,955	
Brown Cattle	..	14,000		13,800	
Water Buffaloes	..	2,015		1,938	
Pigs	.. ..	150,000	(including 18,000 breeding stock)	105,600	(including 11,120 breeding stock)
Sheep	.. ..	20		17	
Goats	.. ..	350		326	
Rabbits	.. ..	720		660	
Chickens	.. ..	2,000,000	(including 148,000 local breeding birds and 20,000 leghorns)	1,200,000	(including 66,000 local breeding birds and 20,000 leghorns)
Geese	.. ..	35,600	(including 5,300 breeding stock)	25,000	(including 2,600 breeding stock)
Ducks	.. ..	207,000	(including 7,000 breeding stock)	130,000	(including 6,500 breeding stock)
Turkeys	.. ..	430		380	
Quail	.. ..	9,050		6,000	
Pigeons	.. ..	53,500	pairs (including 24,000 pairs breeding stock)	120,000	pairs (including 20,000 pairs breeding stock)

98. Both the pig and poultry industries were economically stable throughout the year and there was only slight fluctuation in the market prices of livestock and feeding stuffs.

Livestock Improvement Plan

99. This scheme continued to expand and 105 units were added; at the end of the year there were 346 units in ninety two villages establishing widow farmers as pig raisers. Credit facilities for the purchase of feed by farmers participating in this scheme were provided from the Kadoorie Agricultural Aid Loan Fund. In association with these pig units, seven new boar centres were established, to make the total at the end of the year nineteen, suitably distributed throughout the territory. 1,033 sows were served from these centres during the year. Both weaners and porkers produced under this Plan were in great demand on local markets and 1,785 weaners were sold to the Kadoorie Agricultural Aid Association for the stocking of new units and distribution to other assisted farmers. The high standard of husbandry, which has been achieved with the advice and guidance of the small team of officers concerned, is shown by the fact that of 7,386 piglets born, mortality was only 5%.



Cross breeding of local and exotic pigs produces fine litters.

Extension officer discusses problems with paddy farmer.





Young farmers attend a course on pig keeping.

Forestry staff measuring a sample plot, for growth measurements, in 14-year old pine plantation, Shing Mun.



Disease Control

100. During the year staff attended 7,170 outbreaks of disease involving 34,590 larger animals and 24,393 poultry. Preventive inoculation of livestock was also undertaken by mobile teams within this service and comparative data of vaccine used during the recent four years is tabulated herewith:

TABLE 6
NUMBERS OF INOCULATIONS CARRIED OUT

	1956/57	1957/58	1958/59	1959/60
Rinderpest	8,177	9,906	11,073	11,627
Swine Fever	14,500	16,580	20,180	36,180
Newcastle Disease (Ranikhet)	2,266,000	3,574,000	4,351,000	8,206,000
Newcastle Disease (F Strain)	822,330	553,550	1,622,080	2,423,700
Black-leg	—	—	534	267
Foot & Mouth Disease ...	—	—	—	2,127
Brucellosis	—	—	—	1,650
Anthrax	—	—	—	1,650
Rabies	15,923	10,310	12,122	13,660

In addition some \$36,000 worth of various vaccines were privately imported, from the United States of America and elsewhere, for use by livestock keepers. This increase in the acceptance of preventive inoculation was most encouraging and has had marked beneficial effects upon the general health of livestock, which in turn is reflected in the economy of the industry as a whole.

101. *Foot and Mouth Disease.* This disease increased in incidence but, with the exception of one outbreak which seriously affected production in one small dairy, effects were mild and animals made rapid recovery. Samples were taken from all local outbreaks and sent to Purbright Laboratory for type classification. Types 'A1' and 'A' were noted on two occasions, the remaining outbreaks were Type 'O'. Vaccines, Types 'A' and 'O', were imported from Holland and used on Government stock, two of the dairy farms and by two pig breeders. 2,127 animals were immunized. The incidence of this disease amongst other imported cattle held in quarantine lairages increased considerably. A total of over 4,000 suspected cases were found and 450 carcases were condemned. The congested state of the present cattle quarantine depots made more effective control impossible.

102. *Anthrax.* Whilst twenty one cases were diagnosed in quarantine lairages, only in the case of one pig was this disease diagnosed in local stock.

103. *Rinderpest*. No cases were reported making this the tenth consecutive disease-free year. During the year 11,627 animals were immunized by departmental staff, representing an increase of 554 inoculations more than the previous year.

104. *Ephemeral Fever*. Thirty six outbreaks occurred involving eighty cattle. The usual rapid recovery took place.

105. *Black-leg*. An outbreak of this disease in the Pui O area, South Lantau, caused the death of six cattle. The inoculation of the remaining 267 cattle in the vicinity effectively controlled the spread of disease.

106. *Swine Fever*. Eighty seven outbreaks affecting 631 pigs were investigated. Although there were only eight deaths, loss of condition and unthriftiness of surviving piglets caused serious economic loss. All outbreaks were in uninoculated animals. Preventive inoculations for this disease increased by 16,000 to a total of 36,180. At the present moment the cost of the vaccine remains a deterrent to its greater use by the smaller pig keeper. During the year 402 cases of Swine Fever were discovered in quarantine lairages and abattoirs.

107. *Swine Erysipelas*. Nine outbreaks affecting twenty two pigs were reported and all responded well to treatment. There were no deaths.

108. *Virus Pneumonia of Pigs*. There was a slight increase in the incidence of this disease and 755 outbreaks involving 2,250 pigs were recorded. Emphasis on the fact that higher standards of animal husbandry and better management will reduce economic loss from this disease continued to be an important aspect of extension policy.

109. *White Scour of Piglets*. 19,893 cases in suckling pigs were reported and investigated. Where early treatment was adopted losses were slight.

110. *Gastro Enteritis of Pigs*. This continued to be the most common complaint in adult pig stock. Following advice, regarding feeding and treatment, only six deaths were recorded in 2,203 outbreaks involving 3,270 pigs.

111. *Paralysis of Sows*. 149 cases in lactating sows were treated with subcutaneous injections of calcium borogluconate and the feeding of a mineral supplement. Only six animals failed to respond to treatment.

112. *Newcastle Disease of Poultry*. In spite of the greatly increased use of vaccines, 141 outbreaks involving 10,076 birds were reported. All outbreaks were in unprotected flocks and there was high mortality.

The Department imported 2,423,700 doses of Weybridge 'F' Strain Nasal Drop Newcastle Disease vaccine from Thailand and 8,206,000 doses of Ranikhet vaccine from Malaya. 2,081,000 birds were inoculated with Ranikhet vaccine and the remaining supplies were issued on sale to farmers for administration by themselves. These importations constitute an increase of 3,855,000 doses of Ranikhet vaccine and 801,620 doses of 'F' Strain vaccine compared with the previous year.

113. *Pasteurellosis of Birds*. Although only fourteen outbreaks were reported, the mortality rate was high, 79% of the 536 birds affected.

114. *Coryza of Fowls*. This disease was again widespread; and was especially severe on those farms where intensive systems of rearing and fattening were practised in conjunction with low standards of management. 278 outbreaks involving 3,902 birds were investigated.

115. *Fowl Pox*. Eighty outbreaks involving 1,214 birds were recorded.

116. *Coccidiosis*. The use of coccidiostats is being increasingly adopted by larger producers but diagnosis was requested in 223 outbreaks involving 2,900 chicks.

117. *Veterinary Diagnostic Laboratory*. The amount of material forwarded to the laboratory steadily increased during the year, and, although there are limitations to the range of investigation undertaken, valuable diagnostic work was carried out. During the year 582 microscopic examinations, 932 cultural examinations, 179 agglutination tests and 2,201 biochemical reactions were completed. In addition the territory's supply of Rinderpest vaccine, amounting to some 19,000 doses, was produced. A regular supply of laboratory animals was maintained, principally for departmental use but also occasionally for use by the Institute of Pathology, various hospitals and schools.

RESEARCH SERVICE

118. Research and investigation were carried out on the Livestock Experimental Stations and Substations at Castle Peak, Sai Kung, Sheung Shui and Silvermine Bay. In addition preparatory work was carried out at the Ta Kwu Ling Dry Land Experimental Station so that in due course animal investigation work can extend and expand on that station. Apart from a very mild outbreak of Foot and Mouth Disease in working cattle at the Livestock Experimental Station, Castle Peak, all departmental livestock remained in good health.

Pigs

119. Herds of Middle White, Berkshire, Large White and Improved Local strain pigs were maintained on departmental stations for selective breeding, experimental purposes and to provide farmers with improved stock. All pig stock were inoculated against Swine Fever and Foot and Mouth Disease; and were regularly tested for evidence of *Brucella suis* infection. Five reactors to this latter test were disposed of by slaughter.

120. During the year 116 sows farrowed 990 piglets. The demand for improved stock increased and 263 pigs were sold to farmers who have proven their high standards of good husbandry. 279 pigs were sold to the Kadoorie Agricultural Aid Association for issue to participants in the Livestock Improvement Plan. The remaining stock were culled, used for experimental purposes or incorporated into breeding programmes.

121. *Artificial Insemination.* The results of work on artificial insemination of pigs were most encouraging and a limited service was extended to the public. 101 sows were artificially inseminated and only eight failed to conceive. These failures were due to either abnormalities or untimely insemination. Sixty four of the 101 sows were inseminated under field conditions and insemination was unsuccessful in only six cases. The development of this facility was extended during the year and a laboratory was completed at Castle Peak Livestock Experimental Station. This laboratory will allow for the projection of an artificial insemination service as part of the overall Extension Service; and should be available to farmers at relatively low cost with a choice of semen from selected strains of Berkshire, Middle White, Large White and Improved Local boars.

122. *Cross Breeding.* The first stage of cross breeding experiments was completed during the year. The Middle White/Local and the Berkshire/Local crosses produced litters averaging 10.6 and 9.65 respectively. At 210 days, the Middle White/Local cross averaged 113.5 catties live weight with a dressing-out percentage of 85; and the Berkshire/Local cross 123.9 catties live weight with a dressing-out percentage of 82. Although Middle White/Local cross produced a more numerous litter and consequently a greater quantity of finished pork, the Berkshire/Local cross produced slightly heavier individual piglets. Back crossing of cross-bred sows to their respective boars again yielded good type animals but litter numbers were depressed. The maximum average weight at 210 days was 90 catties and the highest dressing-out percentage 81.

123. Statistics relative to pigs reared under the Livestock Improvement Plan also confirmed the exotic/local cross to be far superior to pure breeds in respect of litter numbers and low mortality. Further work continues to study the performance of the Large White/Local cross and also three breed crosses using Local, Middle White and Berkshire.

124. With the increasing popularity of the use of exotic stock, fewer farmers are breeding pure local strain pigs. To ensure continuity in the supply of breeding stock of local type and strain, a herd of forty selected local sows was established on departmental stations and progeny will become available, in due course, to outside breeders.

Poultry

125. The Government maintained a flock of White Leghorn for the production of eggs for laboratory and hatching purposes. Flocks of several other breeds, such as Cantonese, Wai Chau, Barred Plymouth Rock, Brown Leghorn, New Hampshire and Nikawa, were maintained for experimental and demonstration purposes. Flock improvement by selection on performance continued during the year and a flock of Cantonese birds was established, complying with rigid standards of selection.

126. Fifty Vantress chicks were imported for observations on growth-rate and palatability. The average weight records were as follows:

at 8 weeks	...	...	...	...	...	...	1.6 catties
at 10 „	...	...	...	...	...	...	2.3 „
at 12 „	...	...	...	...	...	...	3.5 „

Although weights and growth-rates were high, these birds were considered unsuitable for local market preferences. There may be a restricted market for such a strain for European consumption and use in certain restaurants.

127. 400 eggs for hatching, from two strains of White Rock, were imported from the United States of America towards the end of the year. The performance of this breed will be tested under local conditions and, if suitable, investigations will continue into potentiality as broiler producers and also for cross breeding purposes.

128. All poultry stock on departmental stations were regularly tested for Salmonellosis and thirty eight reactors were discarded. All stock were inoculated at one day's age with Newcastle Disease Nasal Drop 'F'

Strain vaccine, at four weeks with Ranikhet vaccine, and at three to four months of age with Fowl Pox vaccine.

Cattle

129. A total of seventeen working cattle and twelve buffaloes were maintained on departmental stations, ten cattle were sold to farmers and four buffaloes were slaughtered. All cattle were inoculated against Rinderpest and Foot and Mouth Disease.

Sheep

130. The sheep flock maintained at Castle Peak Livestock Experimental Station was reduced during the year. Eleven ewes were discarded and the remaining stock now total thirteen.

REGULATORY SERVICE

Rabies Control

131. By Ordinance all dogs in the territory are required to be licensed yearly and immunized against Rabies every third year. As a result of the enforcement of these controls, the Colony remained free from Rabies for the fourth consecutive year. Owing to contiguity with the Asian continent and the increasing importation of dogs, both by residents and people in transit, controls must continue to prevent the re-introduction of the disease.

132. Eleven inoculation and licensing centres were in operation during the year and in addition three mobile units were active in covering the remoter areas. This organization ensured that inoculation and licensing services were available to the public with the least possible inconvenience. One dog control unit, co-operating with the Police, was fully engaged in the impounding of stray and biter dogs. Due to an apparent increase in the number of stray animals, kennel accommodation was often inadequate. Sites have been selected for new quarantine kennels both in Hong Kong and Kowloon and it is hoped that new and adequate accommodation will be provided at an early date. A total of 13,660 dogs were licensed and inoculated and 7,362 licensed only during the year. This represents an increase of 1,052 over the previous year's figure. 20,985 stray and unwanted cats were received for destruction, and 1,118 stray dogs were impounded; of these, 412 were subsequently destroyed having not been claimed (see Appendix 12 for further details).

Animal Quarantine

133. Officers of the Division were responsible for the inspection at point of entry and the supervision of transport within the Colony of all animals imported for slaughter. During the year inspection staff boarded 530 vessels importing 212,000 swine and 63,000 cattle to the territory from China, Thailand, Vietnam, Cambodia, Indonesia, Taiwan, Okinawa, South Korea, Japan and Australia. Further inspectorate duties were carried out in respect of all animals arriving overland. In addition a total of 110 dogs, cats and other animals were quarantined and examined upon import.

134. During the year a total of 1,214,009 swine, 146,000 cattle, 959 sheep and 13,606 goats was admitted to quarantine lairages for subsequent slaughter; of these, 248,488 pigs and 3,246 cattle were of local origin. These figures represent an increase of 99,725 pigs and 9,136 cattle imported compared with data for the previous year. Admission of local stock for slaughter decreased, compared with the previous year's figure, by 64,611 pigs and 1,683 cattle. Of the local cattle slaughtered for consumption, 298 were discarded dairy animals; 523 discarded dairy calves and 2,425 local brown cattle and buffaloes. The establishment of a quarantine station at Tai Lam Chung entered the planning stage during the year and discussions were held with various authorities concerned. This quarantine station will be an essential ancillary to the proposed new abattoirs, as the latter are designed to accommodate only a given number of animals proportionate to through-put and not to accommodate extremes of fluctuating import shipments.

New Territories Abattoirs

135. A total of 129,533 pigs and 13,431 cattle were slaughtered in rural abattoirs during the year. These figures include 5,968 cattle and buffaloes imported from Australia and slaughtered at the quarantine depot/abattoir at Tai Pak, Lantau Island. Quarantine enforcement and meat inspection were carried out by staff of the Department at Yuen Long, Tai Po and Tai Pak abattoirs. An abattoir operated in Tsuen Wan from October 1959 to February 1960 and during this period meat inspection duties were carried out by an Urban Services Department officer directly responsible to the Senior Veterinary Officer.

Dairies

136. At the 31st March, 1960, there were 2,993 cattle in twenty one licensed dairies throughout the Colony; these dairies are concentrated within the urban area. During the year all dairy stock were tuberculin

tested; there were eight reactors (0.27%), these were slaughtered and compensation paid. Sixty nine milk samples were taken during the year and, of these, only thirty three complied with the required standards. Marginal, sub-standard cases were referred to the Extension Service for advice and improvement. Legal action was taken against cases of adulteration.

137. Congestion of dairy premises and the continual encroachment of built-up areas demands an early re-location of dairies in more rural environments. A survey of potential sites was carried out during the year and certain areas, which may be made available to dairymen wishing to move or expand their businesses, were earmarked.

Preservation of Wild Life

138. During the year amendment of the Wild Birds and Mammals Protection Ordinance empowered the Director of Agriculture, Fisheries and Forestry as the licensing authority in respect of permission to shoot or take certain wild game. Three Game Wardens were appointed; as well as a number of Honorary Game Wardens. After a suitable training period, official Game Wardens were allocated specific areas for patrol duty. Publicity in many forms was given to the Ordinance and prosecutions were undertaken where offences were committed. Initially, the conservation of wild life was made the responsibility of the Animal Industries Division, which works in close collaboration with staff of the Forestry Division who assumed responsibility particularly in respect of forest reserve areas.

PART 5

FISHERIES DIVISION

Officer-in-charge: Mr. W. D. ORCHARD—Fisheries Officer

139. The Division was primarily concerned with fisheries extension work and a certain amount of investigational work was also undertaken. Promotion of mechanization, development of better fishing boats, training of fishermen for Marine Department certificates of competency as masters and engineers, together with the introduction of improved fishing gear and new fishing methods, were the main duties of the marine section. The fresh-water fisheries and oyster culture section maintained close contact with local pond fish and oyster farmers to whom advice was given and improved methods of culture were demonstrated.

MARINE FISHERIES SERVICE

REVIEW OF FISHING ACTIVITIES

Fishing Community and Fishing Vessels

140. The number and types of fishing vessels comprising the Hong Kong fishing fleet, together with an estimate of the population actively engaged in fishing, are recorded at Appendix 16. These figures are based on a rough census carried out at each of the main fishing centres during the Chinese New Year.

Analysis of Catch

141. There will be found at Appendix 14 the monthly landings of the four main categories of vessels throughout the year, and at Appendix 15 an analysis of the more important species of fish caught. In both Appendices the figures for 1958/59 are included for comparison.

Trawler Company Vessels

142. Three additional Japanese-type 'Bull' trawlers joined the fleet during the year and these brought up to eleven the total number of paired trawlers worked by the local Fishing Companies. These boats operated in the Gulf of Tongking and around Hainan Island. These company vessels landed 73,037 piculs of fish as against 61,453 piculs during the previous year.

Junk Trawlers

143. The mechanized 'deep sea' junk pair trawlers did well except during the period from June to September, when the quantity of bottom fish caught in fifty five to sixty five fathoms off Ping Hoi and the Lema Islands fell below average. Conditions on the usual fishing grounds were such that during August many of the deep sea junks moved into the inshore waters just south of the Ladrone Islands, where reasonable quantities of Snapper, Head Grunt and Crevalle were caught. Two pairs of mechanized deep sea trawlers tried a new fishing ground off Hui Ling San (and east of Taya Island), in a depth of eighty two fathoms. This is the deepest that local junks have so far trawled. The results were good, catches consisting mostly of large size Red Sea Bream and Red Snapper.

144. Nearly all of the mechanized inshore junk pair trawler Skipper/Owners accepted the conditions laid down by the Chinese Government

—whereby they were required to land a quota of their fish in China—and then proceeded to work their usual fishing grounds near the Ladrone and Lema Islands. Catches were good except during the months of October and November.

145. Most of the sailing deep sea and inshore junk trawlers were laid-up in harbour for the greater part of the year, on account of the quota, fishing ground and other restrictions, imposed by the Chinese Government. Large numbers of fishermen sought alternative employment, such as in textile factories and as casual labourers.

146. Shrimp trawler fishermen had a very poor year. Neither the winter large White Shrimp season nor the season for the Commercial Shrimp were as good as in previous years. Furthermore, in June the American authorities prohibited all imports of prawns and shrimps from Hong Kong, as a result of the discovery of certain irregularities allegedly practised by some Hong Kong exporters.

Long Liners

147. Apart from serious difficulties over obtaining anchovies for bait during January and February, both the large and medium-sized junk long liners, all of which are mechanized, had a very good year. Interference with the baited lines from sharks was less than usual. These vessels have continued to extend their areas of operation. The medium-sized boats, whilst not going out as far as the larger vessels, are fishing many of the same grounds.

148. The mechanized Conger Pike long line fishermen did not do well during the first half of the year. From July to September some of these fishermen accordingly turned to lining for Shark and Grouper, with fairly successful results. The Conger Pike however once more became fairly plentiful during the latter half of the year and these fishermen then reverted back to their normal fishing.

149. The small long liners fishing for Golden Thread and other seasonal fish such as Mackerel, White Herring and Thread Fin, had good catches during the first and last quarter of the year. The remainder of the year was unsuccessful as the seasonal fish were not as plentiful as usual and adverse weather conditions affected the fishing operations. As in the case of the large long liners, these small boats also commenced fishing further afield, and in deeper water, than they had previously operated.

Purse Seiners

150. The yields of Carangoid, Squid and Anchovy were good throughout the summer main season. Unfortunately, catches during the rest of the year were poor.

Pa T'eng

151. Most of the Pa T'eng boats completely discontinued working their usual large purse seiner nets and went over to either shrimp beam trawling or long lining.

152. During the Mackerel Scad season (i.e. normally the main fishing season for these boats) only three Pa T'eng accepted the 'Landing Quota' imposed by the Chinese Government, and, although their catches were good, little or no profits were made. The fish had to be landed in China and as much as 40% commission was deducted from the proceeds of sales as contributions towards various funds organized by the Chinese District Fishermen's Associations.

Gill Netters

153. The Yellow Croaker season, main fishery for the Tai O based 'Big Tail' junks and the small gill netters, was again a failure. Fortunately, most of the boats were able to obtain good catches of Thread Fin, Mackerel and White Herring by using nylon monofilament gill nets.

Mechanization

154. An additional 536 vessels joined the mechanized fleet, and after allowing for 127 former mechanized vessels which either reverted to sail or transferred to the motor trading register, the total strength of the mechanized fleet as at the 31st March, 1960 was 2,747 vessels. Details are recorded at Appendix 17.

Fishing Boat Development

155. Two hundred and ninety two new power-driven fishing boats, after examination by the Fisheries Division, were recommended for licensing by the Marine Department. This figure does not include the number of newly built sailing craft that were also licensed, no record of which is kept by the Division. Of these 292 vessels, 280 were built in the Colony, eight were built in Macau and four in China. A con-

solidated summary containing brief particulars regarding these vessels, together with information for the previous year, is recorded below:

TABLE 7

NEWLY BUILT FISHING BOAT HULLS MECHANIZED IN 1959/60

<i>Type of Vessel</i>	<i>No. of Vessels</i>	<i>Capacity (in piculs)</i>	<i>Main Engine Horse Power</i>	<i>Cost of Wooden Hulls</i>
Deep Sea Trawler	2	4,186	228.0	\$ 91,500
Inshore Trawler	4	4,024	396.0	51,200
Shrimp Trawler	31	14,708	1,240.0	172,880
Big Long Liner	6	13,971	972.0	345,400
Medium Long Liner	15	11,123	837.5	147,800
Small Long Liner	142	28,246	2,183.5	435,713
Hand Liner	5	508	22.0	7,160
Purse Seiner	39	7,780	439.0	116,960
Gill Netter	45	9,548	715.0	123,680
Fish Collector	3	445	33.5	6,110
Total	292	94,539	7,066.5	\$1,498,403
1958/59	79	37,422	2,924.0	639,110
Comparison	+213 (+270%)	+57,117 (+153%)	+4,142.5 (+142%)	+\$ 859,293 (+134%)

Steam Chest

156. The simple steam chest designed and built last year was lent to three native junk building yards. The builders concerned were all of the more progressive group, who are interested in entering into the yacht and motor-boat construction trade. They were shown how to operate the steam chest and it was then used to steam bend the frames for two pleasure yachts and one small motorized harbour 'walla-wallah'. The value of the steam chest for bending hull planking, and even gunwales and keels in small craft, is fully appreciated. Due however to a lack of familiarity with the steam chest on the part of the carpenters in the primitive yards—and the consequent higher cost of labour involved—all the local fishing craft are, so far, still being built with sawn frames.

157. At the request of a purse seiner fisherman at Cheung Chau, the Craft Technician designed a balanced steel rudder for a new mechanized boat. This was made and fitted at Cheung Chau and properly organized speed trials were carried out. The owner expressed great satisfaction with performance, which he maintained was far better than that obtained from the large wooden sailing rudder and thick wooden rudder stock which he had operated in his previous mechanized boat.

Conversion of Trawling Junks

158. Technical advice was given to the fishermen/owners of a pair of large mechanized 'Lai Shuen' type inshore junk trawlers, who wished to modify their boats to enable them to operate further afield in international waters. Loan money from the Fish Marketing Organization was made available to these fishermen. The conversions proved successful.

Progress in Hull Design and Fittings

159. Ten of the new vessels built during the year were fitted with steel rudder blades and stocks, instead of the large wooden rudders usually found in local craft. Four of these vessels were also built with wheelhouses and employed chain or cable steering. Another two small long liners were constructed with better shaped sterns than usual, thereby eliminating the customary 'A' brackets which are normally used to support the long projection of propeller shaft.

Fisheries Division Vessels

160. The 66 ft. L.O.A., steel F.R.V. 'Alistair Hardy' was acquired by the Division on the 1st January. A number of minor alterations were carried out and a crew appointed. The Fisheries Supervisor in charge of the Navigation Class acted as 'Skipper' until the Fishing Master arrived in the Colony (on the 4th April, 1960). For the rest of the year this vessel was used for experimental shrimp beam trawling.

161. Fisheries Division Vessel No. 1 ('Olenka'), a 33 ft. motorized modified junk, was transferred to Tai Po and used for pearl-oyster culture inspection work and other duties.

162. F.D.V. No. 2 ('Yuen Ling'), a 33 ft. wooden boat with a much improved hull form and better general arrangement, was fitted with an echo-sounder and used for experimental purse-seining and trawling. To enable this little boat to work a ninety-fathom purse-seine (instead of the so-called 'purse-seine' of only twenty five fathoms such as is normally employed locally), a number of small alterations were carried out; the boat being fitted with a special davit for lifting the purse rings and with new fairleads.

Fishing Investigations

163. A new ninety-fathom purse-seine net was made. This was fished in conjunction with both kerosene pressure 'bright lights' used above the water surface and with under water electric lamps. The latter included ordinary electric light bulbs held in a simple Italian type water-tight socket (as suggested by the Fisheries Division of F.A.O.)

and a patent Japanese-made mercury lamp which radiates blue light of mostly ultra-violet rays. Indications are that the Japanese mercury lamp will probably prove to be the most successful but results have, so far, been inconclusive as difficulties were experienced.

164. Another form of shrimp beam trawl employing bamboo dan lenos (instead of the heavy metal skates previously used), was tried out at the suggestion of a visiting F.A.O. Fishing Gear Technologist.

FRESH WATER FISHERIES AND OYSTER CULTURE SERVICE

Fish Culture

165. An additional 213 dau chung (or 35.5 acres) of land was converted into thirteen new brackish-water fish ponds. This brought the total area devoted to fish farming in the New Territories up to 3,555½ dau chung (or 592.58 acres).

Fish Fry Trade

166. The import of fish fry is summarized in paragraph 31. The local trade is at present more or less confined to Grey Mullet. The 1960 season (January to March) for the capture of Grey Mullet fry in the coastal waters of the Colony was a failure. Only some one and half million fry, or 25% of the total required to fully stock the brackish-water fish ponds, were caught. Prices soared to 23¢ a fish.

Departmental Fish Ponds

167. The two experimental ponds, totalling 1.7 acres, at Au Tau were used to rear Grey Mullet and Grass Carp. The growth-rates of these fish were recorded.

Edible Oyster Industry

168. The edible oyster industry is centred on Deep Bay on the western coast of the New Territories. To facilitate export certification, officers of the Division witnessed harvesting operations at the oyster beds and subsequent processing. Altogether 4,771 containers were sealed and the contents certified as being of Hong Kong origin.

Pearl Oyster Culture

169. Three pearling companies were granted six-month temporary licences in July, to operate under the Pearl Culture (Control) Ordinance. Investigations carried out in the following January showed that these companies were well equipped and that their embedding and culturing techniques were satisfactory. They were accordingly granted full licences

to continue operating for another $4\frac{1}{2}$ years. In February temporary licences were issued to a further three companies. In the case of two of these companies, however, there were subsequent objections from the local fisherfolk who carry out their normal fishing operations in the areas allocated for pearl culture. At the end of the year, suitable alternative pearl culture sites were being sought for these two companies.

170. Two species of pearl oyster are cultured, namely the large 'Wing' oyster (*Pteria penguin*) and the small 'Japanese' oyster (*Pinctada martensii*).

CERTIFICATES OF ORIGIN

171. Certificates of local origin for the following marine products were issued by the Division:

A. *For export to the U.S.A.*

Dried oyster. Six oyster-bed 'Tongs' received ninety certificates of origin for 58,124 catties (34.6 tons) of dried oyster valued at \$504,404.

Oyster juice. Six oyster-bed 'Tongs' received 153 certificates of origin for 155,500 catties (92.6 tons) of oyster juice valued at \$741,270.60 to be processed into oyster sauce.

Silver shrimp. Five manufacturers of silver shrimp received seventy six certificates of origin for 122,213 catties (72.5 tons) of fresh silver shrimp valued at \$81,196.74 for conversion into shrimp paste and sauce.

Fresh shrimp. Nine manufacturers of shrimp slices and shrimp noodles received fifty nine certificates for 14,435.25 catties (8.6 tons) of fresh shrimp valued at \$38,453.35.

Spotted fish. Two manufacturers purchasing living spotted fish from fishermen for canning 9,157.5 catties (5.5 tons) valued at \$36,214.50. Seven certificates issued.

B. *For export to the U.K.*

Oyster juice. One oyster-bed 'Tong' received two Imperial Preference Certificates for 1,276 catties (0.76 ton) of oyster juice valued at \$5,742 for processing into oyster sauce.

Fresh shrimp. Four firms received twenty seven certificates for 16,966.75 catties (10.1 tons) of fresh shrimp valued at \$43,982.15 for the production of shrimp noodles and slices.

C. *Miscellaneous*

Sea-weed. Two firms received thirteen certificates of origin for 4,459.5 catties (2.7 tons) of sea-weed valued at \$17,211.85 for export to Bangkok.

PART 6

FORESTRY DIVISION

• Officer-in-charge: Mr. P. A. DALEY, B.Sc. (Wales)—Forestry Officer

172. Government's forestry policy was continued by protecting vegetation on Crown Lands, by afforesting large areas of these lands,

and by promoting farm forestry among the farming population. This work was supported by research to discover better tree species and afforestation techniques. Thus the work of the Division fell into three inter-related sections, Crown Lands (protection and afforestation), Extension (farm forestry) and Research.

GENERAL AND CROWN LANDS

Seed Supply

173. The major portion of the planting programme as in previous years was dependent upon the collection of suitable local seed. As there were very few mature trees of any species, including the native pine, within the Colony; collection could not be very selective. Adequate quantities of the main species required were available, however, and the current year's collection yielded the following:

<i>Pinus massoniana</i>	...	...	...	...	...	912 lb.
<i>Tristania conferta</i>	...	...	...	...	...	134 lb.
Other species (about sixty)	...	...	...	...	...	397 lb.
Total						1,443 lb.

Bulk seed supplies were kept in commercial cold storage; this applied especially to pine seed which was not sown until after the summer rain, i.e. about nine to ten months after collection. Small quantities of seed, of nineteen exotic species and amounting to 11 lb. in all, were received from overseas. This seed was received either as gifts or in exchange for consignments from the Department. Seed of seven species, amounting to a total weight of 5 lb. 7 oz., were sent overseas.

Nursery Work

174. Nursery work centred around the tubing of young seedlings and approximately four-fifths of the total stock were tubed, as compared with only one-half in the previous year. Experience has proven that tubed stock show a greater percentage of survival and grow better in the field than do bare-rooted plants. As this was especially applicable in the face of adverse weather conditions, and the latter being frequently encountered, tubing became undoubtedly advisable even if considered from this viewpoint only and not also in respect of the several other well-known advantages, such as reduced costs of watering, weeding and ease of handling. Whether present techniques are open to improvement or not requires further careful study. During the year three-inch wide polythene tubes, giving a diameter of approximately two inches when filled, were used. The depth of the tube was dependent on species; for

pine this was six inches, whilst for *Tristania conferta* and other species depth was eight inches. It was noted that roots often became overcrowded by the time of planting, and, although there was no marked hindrance to development, better root-form would probably be beneficial.

175. Slightly more than 50% of the total annual seedling production occurred at the main permanent nursery, Tai Lung. The remaining production was in thirty one smaller permanent and temporary nurseries throughout the New Territories, Hong Kong and Lantau Island. Several of these small nurseries were sited in areas hitherto inaccessible to road transport; as communications and accessibility improve, however, it will become increasingly possible to limit the number of subsidiary nurseries and distribute stock from fewer and more efficient main centres.

Plantations

176. As planting work progresses and stands mature, attention can be increasingly turned to detailed surveys with a view to eventual exploitation of forest produce. Figures quoted hereunder should, in the meantime, be regarded as provisional.

177. During the year new planting covered 2,215 acres, making an estimated total of nearly 12,000 acres for the whole Colony. The position is summarized below:

TABLE 9

Class of Land	Area under plantation (Acres)		
	At 1.4.58	Added during year	At 31.3.60
Forest Reserves	8,170	1,595	9,765
Unreserved Crown land ...	50	70	120
Forestry Lots	1,477	550	2,027
Total	<u>9,697</u>	<u>2,215</u>	<u>11,912</u>

The replacement of losses from previous years was carried out over several hundred acres.

178. The normal replacement factor for failures and losses due to damage, adverse weather and other natural causes, required in the current year's new planting was estimated to be equivalent to about 360 acres of replanting. Most losses were due to long spells of dry weather early in the planting season; otherwise establishment and early growth was good.

179. The local pine (*Pinus massoniana*) was the chief species used, as it seems to be the best pioneer, particularly on exposed sites. Brush

box (*Tristania conferta*) was used on better soils and less exposed sites. Other species planted on a small scale were:

<i>Acacia confusa</i>	<i>Eucalyptus citriodora</i>
<i>Casuarina equisetifolia</i>	<i>E. robusta</i>
<i>C. stricta</i>	<i>E. sideroxylon</i>
<i>Melaleuca leucadendron</i>	<i>E. tereticornis</i>

Substantial areas in different parts of the Colony have been planted with *Casuarina equisetifolia* during the last few years. Growth has been disappointing. Small areas have been planted in certain localities with *Casuarina stricta* and the growth of this species has been very vigorous and very encouraging. The *C. stricta* plantings cannot be considered as representative, however, until this species has been given more widespread, environmental trials. Stock of *C. stricta* was increased during the year to permit of trials covering a greater ecological range. Local pine, *P. massoniana*, in the main did well everywhere but response was better on certain soil groups. In some of the older stands of this common species, thinning is urgently required if true value is to be obtained.

Protection

180. *Forest Offences.* Thirty four persons were convicted of forest offences, compared with ninety seven in the previous year and twenty six prior to that. Details are given below:

TABLE 10
PROSECUTION OF FOREST OFFENCES

Class of Land	No. of Cases	No. of Persons	Fine		Verdict			
			Persons	Amount \$	Imprisoned	Caution	Bound Over	Dismissed
Forest Reserves ..	3	4	1	50	1	1	1	—
Unreserved Crown Land ..	22	29	5	90	8	15	1	—
Forestry Lots ..	1	1	—	—	1	—	—	—
Total ..	26	34	6	140	10	16	2	—

The reduction in the number of prosecutions as compared with the previous year was probably due to the fact that market fuel supplies were more adequate and thus the temptation to fell trees illegally was reduced.

181. *Fire.* 133 fires were reported to and dealt with by Forestry staff. These fires covered a total of 2,221 acres in or near plantations but only 221 acres of young plantations were actually damaged. The remaining land being under unimproved, natural vegetation. The sum-

mary of the classes of land and types of vegetation affected was as follows:

Total number of fires reported=133

Acreage affected by these fires=2,221

Classes of land affected (in acres):

Forest Reserves	794 acres	
Forestry Lots	266 „	
Other Crown Lands	1,161 „	Total: 2,221 acres.

Types of vegetation affected (acres):

	<i>Hardwoods</i>	<i>Brush & grass</i>	<i>Conifers</i>	<i>Total</i>
Unimproved natural	21	1,939	40	2,000
Plantations	15	9	197	221
Total	36	1,948	237	2,221

182. Fire-barriers, half a chain wide and devoid of vegetation, afforded a certain amount of protection to plantations. Twenty two miles of new fire-barriers were made bringing the total length of permanent barriers to date to fifty seven miles. Fire-barriers not only surround but also sub-divide plantations.

183. The overall system of protection against fire was further strengthened during the year by the erection of six new fire-lookouts strategically placed on prominent hilltops and connected to the main communication system by field telephones. During the dry winter months fire-lookouts were manned by two-man teams during day-light hours. When the fire hazard index was very high these look-outs were manned on a 24-hour basis. The public were warned of the dangers and consequences of forest fires through various media, including the press and radio; again when fire hazards were particularly high radio announcements were made in conjunction with daily news broadcasts.

184. *Pests.* The defoliating caterpillar (*Dendrolimus spectabilis*) occurred in many stands of local pine throughout the Colony. Pilot trials with various spraying equipment were carried out and in the light of experience more adequate and up to date equipment was ordered. Although attacks of these insects did not kill trees, the latter were noticeably retarded in both vigour and growth.

Communications

185. Construction of the Pat Heung access road continued and a further two miles were added. Progress was slow as particularly difficult ground was encountered. The remaining $4\frac{1}{2}$ miles of road already con-

structed were maintained. In addition 5½ miles of new forest paths, suitable for motor-cycle access, were made and the previously constructed paths maintained. The total length of forest roads at the end of the year was six miles and there were forty seven miles of forest paths.

186. An important aspect of forest communications are the field telephones and ten additional sets involving nearly nine miles of wire were installed during the year. There are now twenty sets with some eighteen miles of wire linking main offices to the remoter outposts, fire-lookouts and minor field nurseries.

EXTENSION

Farm Forestry

187. Assistance was once again given to villagers in establishing private plantations, which are beginning to form what amounts to a secondary forest estate. Hillside adjacent to villages, used for generations for grazing, grass and scrub fuel gathering, etc., can be put to more profitable use under tree cropping. Not only can direct monetary return be obtained but indirect benefits accrue as a result of soil and water conservation. In spite of extension efforts to explain and emphasize the benefits of private forestry and in spite of the inducement given in the form of practical assistance, villagers retained their inherent conservatism and suspicion and considerable patience was necessary to maintain progress. 550 acres were added to previous plantations and older stands, ready and suitable, were thinned to yield poles and fire-wood loppings. As the practical benefits of farm forestry can be demonstrated to villagers, interest should be stimulated and progress accelerated. Approximately 200 tons of old pine and native hardwoods were felled in forestry lots on permit for fuel purposes.

Amenity Planting

188. A total of 12,929 trees were planted in the New Territories, as follows:

<i>Roadside</i>									
New	...	...	...	...	...	...	...	...	6,152
Replacement	...	...	...	...	...	...	...	...	1,423
<i>Others</i>	...	...	...	...	...	...	...	...	5,354
Total									12,929

These, as well as trees planted in previous years, were tended. A further 17,142 plants were supplied to the public, institutions and Government departments for private amenity planting.

189. The Division received 205 applications for permission, and in some cases for assistance, to fell or trim old amenity trees now endangering property or interfering with building work. In fifty cases permits were issued to applicants to do the work, in ninety six cases the Division carried out the work and eighteen applications were referred to the Gardens Division, Urban Services Department.

RESEARCH

Forest Botany

190. Seventy nine plants of thirty four species, including thirty culms of bamboo, were added to the arboretum at Tai Lung. Growth of most species was very disappointing and further planting was suspended. Whilst it would be ideal to have the arboretum in close proximity to the forestry research station, because the available ground is stony and relatively infertile an alternative site in Tai Po Kau Forest Reserve is being examined. A second batch of herbarium sheets, numbering 320, was received from the Gardens Division. Fresh collections by Forestry staff were made of some 591 species, 300 specimens were preserved and mounted and 277 specimens were formally identified.

Ecology

191. Of the three protected vegetation plots laid out last year, the plants in two plots, Tai Lam and Tai Po Kau, were identified, plotted and listed.

Silviculture

192. Investigations continued with cover crops, green manures, artificial fertilizers, compost, seedling plant containers, potting mixtures and weed killers. Most experiments were indicative, small-scale trials made with a view to planning more comprehensive, statistical experimental work. Sample plots in the older stands of pine were marked out. Suitable sites were few due to the frequent changes in slope, aspect and soils which had clearly affected growth and vigour.

193. Particular note was taken during the year of extraordinary growth rates displayed by several broad-leaved species established at Castle Peak Model Plantation during the past three to four years under pine shelter. Height increments of several feet per year were noted and compared with the almost stationary conditions of growth in similar species on nearby exposed sites. This phenomenon was subsequently

observed at many other sites and has indicated a need for further investigation into the study of under-planting.

Soil Conservation

194. The construction of three more run-off plots and tanks was completed during the year to make a total of six now available. These plots will come into full use in the wet season of 1960. Measurements of stream-flow from the catchments were made throughout the year and the recently obtained recording rain-gauge was installed and reading commenced. Run-off plots, stream-gauges and the rain-gauge are all in the same locality within the Tai Lam Forest Reserve.

Utilization

195. No utilization experiments were made during the year.

TIMBER AND FUEL SUPPLY

196. As previously indicated in paragraph 36, the availability of local forest products was negligible in comparison with total requirements. Thus, generally speaking, the territory's timber and fuel-wood supplies were all imported; villagers obtained a certain amount of fuel locally from hillsides in the form of branches, undergrowth and dry grass. A summary of imports and exports of timber and fuel is given in Appendix 18. It should be noted, however, that export in this context really means re-export. Divisional staff inspected seventy consignments of timber for re-export to other countries and issued the necessary Certificates of Freedom from Live Borers.

PART 7

SUPPLEMENTARY SERVICES

FINANCIAL ASSISTANCE TO PRIMARY PRODUCERS

197. The Department operated two loan funds for the benefit of farmers and fishermen and was closely connected with the work of the Kadoorie Agricultural Aid Association.

198. A new fund of \$2 million was made available by the Hong Kong Government in January 1960. The object of the fund, administered by the Director with the assistance of an Advisory Committee, is to enable loans to be made for the improvement and development of the Colony's mid and distant-water fishing fleet. The first meeting of the Advisory Committee took place on the 11th April, 1960.

Kadoorie Agricultural Aid Loan Fund

199. This Fund was established under Ordinance No. 25 of 1955 and was originally limited to \$500,000. In 1957 the Fund was increased by a grant of \$750,000 and at the end of the year was capitalized at \$1,250,000, of which \$250,000 has been contributed by Messrs. Lawrence and Horace Kadoorie and \$1,000,000 contributed by Government.

200. The Fund was controlled by a Committee, the Chairman of which was the Director who was also Trustee of the Fund. The Committee met fortnightly to consider and approve loans and to transact such other business as arose. Staff of the Credit Service, attached to Headquarters, undertook the work of loan investigation, disbursement and recovery. During the year under review staffing of the Credit Service was strengthened by the appointment of six additional officers and at the end of the year there was a Local Credit Officer in each of the eight Circles into which the Department divides the territory; as well as three Credit Officers on particular projects including credit facilities concerned with the Livestock Improvement Scheme and Kadoorie Agricultural Aid Association liaison. The Credit Service was supervised and co-ordinated by the Senior Credit Officer, of assistant professional standing. The secretarial and financial duties in relation to the Fund were undertaken by the general administration of the Department. The Accountant/Secretary of the Department was also Secretary to the Committee. There was extremely close liaison between the Credit Service and all other services within the various divisions of the Department.

201. From the commencement of the Fund until 31st March, 1960, applications amounting to \$4,308,621.44 were considered by the Committee. Loans amounting to \$2,375,340.82 were approved and issued; and loans amounting to \$1,148,429.22 have been repaid. The statement of accounts for the year ending 31st December, 1959, may be found at Appendix 19.

202. Interest-free loans were issued for a variety of purposes including the purchase of livestock, livestock feed, fertilizers, insecticides, seed and planting material, fish fry and farm equipment, and for land development including the construction of fish ponds. Loans did not normally exceed \$2,000 and in fact average \$170. The period of repayment varied from six months to two years according to the nature of the loan. Loans were not secured; the applicants' honesty and industry being regarded as more important. Experience up to date has shown

that amounts up to \$500 can be safely loaned to small farmers. Occasionally, unforeseen natural farming hazards make it difficult for the small farmers to repay short term loans on time; again experience has shown that such farmers do not really repudiate their debt but invariably request a reasonable extension of time for repayment. Whilst the Loan Fund afforded considerable assistance to farmers, there was still a large degree of dependence on other forms of borrowing. The latter sources of money included professional money lenders and normal trading sources; interest rates differed but were invariably very high. It is hoped that in time the Fund will reduce the need for recourse to private borrowing and help to reduce interest charges to a more reasonable level.

The Colonial Development and Welfare Loan Fund for Mechanization of Sailing Junks

203. A loan of \$800,000 from Colonial Development and Welfare sources was made available by the United Kingdom Government in 1953 to enable the establishment of a fund for the purpose of making loans to inshore fishermen for the mechanization of fishing junks. Repayment of the loan to the United Kingdom commenced in 1958 and will be completed in five years.

204. During the period under review, one fishermen received a loan and twenty cleared their outstanding balance. Twenty one fishermen had their repayment period extended for varying purposes of from three months to one year. Loan repayments during the year amounted to \$66,314.44 and a total amount outstanding at 31st March, 1960, was \$62,565.19. Altogether 124 fishermen have received loans since the inception of the scheme.

Kadoorie Agricultural Aid Association

205. This scheme of assistance, by means of grants usually in kind, to farmers of the New Territories first came into being in 1951. The Department took an increasing interest in the early proposals and in 1953 became officially associated for purposes of technical guidance and assistance. The Association is controlled by a Committee comprising Mr. Lawrence KADOORIE and Mr. Horace KADOORIE (who are the financial sponsors), the Director and Assistant Director, the Senior Veterinary Officer, the Agricultural Officer and the Senior Credit Officer.

206. The objects of the Association are to give financial support to schemes of agricultural development approved by and under the general

guidance of the Department; and to give direct assistance to individual farmers, including refugees.

207. Details of the work of the Association are published separately in a special report. During the year under review, departmental staff provided technical assistance and advice, and in many cases directly supervised the following:

- (a) the distribution of 15,464 bags of cement (about 773 tons); this brings the total distribution since the commencement of the project to 177,954 bags (about 8,897 tons). The cement was used for the construction of roads, channels, dams, bridges, wells, water sumps, fertilizer sumps, piers, small reservoirs, retaining walls, sea-walls, pigsties and other farm buildings;
- (b) the operation of six pumps, during dry weather, to irrigate 271 dau chung of paddy nurseries and to supply water to fish ponds;
- (c) the donation of 4,621 insecticide sprayers to the farmers of twenty two co-operative societies and 500 private vegetable growers;
- (d) the maintenance of K.A.A.A. village orchards and the free supply of fruit tree seedlings to deserving farmers;
- (e) the purchase and free distribution of 141 cattle, 21,502 poultry and 2,075 pigs to deserving farmers requiring capital assistance; all stock were inoculated against disease;
- (f) the establishment of 252 pigsties and the replacement of farm houses lost by natural disasters;
- (g) the maintenance and gradual extension of work on the Kadoorie Farm at Pak Ngau Shek, which supplies pigs, poultry and planting material for extension purposes.

208. The Kadoorie Agricultural Aid Association worked in close conjunction with the Department in the execution of the Livestock Improvement Plan referred to in Part 4 of this Report. This scheme was not only concerned with the development of pig raising by the individuals concerned therein, but was also part of an overall educational programme directed at improvement of animal husbandry by visual demonstration. The part played by K.A.A.A. was assistance in providing initial capital outlay to farmers.

EDUCATION AND INFORMATION

209. The greater portion of informal education was provided for the public through the extension services of all divisions. Further

informal education was provided through various media; including broadcasting, film shows, farm and station visits, the Agricultural Show and special project weeks, such as the 'Tree Planting Week'. Formal education was also given through Farmers and Fishermen Training Schemes.

Farmers Training Schemes

210. *Young Farmers Training Courses.* This year the format of Young Farmers Training Courses was changed. The new programmes, which came into effect during the year, now provide a shortened three-week course in general agriculture which acts as a precursor for a series of more specialized courses, each of one week's duration and dealing with a particular aspect of farming, i.e. paddy cultivation, pig keeping, market garden crop production, pond fish culture, etc. Instruction during the various courses was given by the appropriate specialist officer concerned with individual aspects of the industry. The administrative and general arrangements were co-ordinated by the Rural Education Officer. In broad outline, the pattern of courses was similar, mornings being devoted to lecture and discussion periods followed by practical work, demonstrations, farm visits and film shows during the afternoons. The courses proved extremely popular.

211. An important aspect of the courses given to date was that the course goes to the farmer rather than *vice versa*. This made for less inconvenience in the normal farming pattern of the small holder, who could not afford to allow a member of his family to leave home. Two general agricultural training courses were held during the year at Sha Tin and Sai Kung, which were attended by a total of forty students. The Rural Committees concerned afforded considerable assistance by providing lecturing facilities and evincing great interest in the students' progress. Four special training courses were held at Castle Peak (2), Sheung Shui and Tai Lung. These particular courses covered paddy cultivation, vegetable growing, pig keeping and farm forestry, and were attended by seventy three students. At the end of each course those students who reached a satisfactory standard were awarded a certificate of competency.

212. *Farmers Vocational Courses.* As a result of popular demand during the year, arrangements were put in hand to provide established farmers with suitable vocational courses. This planning foreshadowed an important development in more formalized training of established farmers.

Fishermen Training Schemes

213. The Department continued its training programme designed to qualify fishermen in various skilled vocations within the industry, and especially in relation to mechanized fishing vessels. In each case training is in accordance with the requirements of the Marine Department.

Skipper Class

214. The Ninth Skipper Class consisted of fishermen from the mechanized local junk fleet who, whilst not being required by law to possess the modified 'Trawler Master' certificate, sought a knowledge of navigation to help them both to locate the exact positions of fishing grounds and to enable them to return to Hong Kong from the high seas without having to go through Chinese-waters. Eight candidates completed the course in November and were examined by the Marine Department. Four passed the oral examination but all eight failed the written chartwork paper. All these fishermen returned for further instruction.

Coxswains' Classes

215. Twelve classes involving 192 fishermen were organized at Aberdeen, Cheung Chau, Sai Kung, Kowloon and Tsuen Wan. Including candidates who had been trained during the previous year but were not examined until after the 31st March, 1959, the number that passed the Marine Department examinations was 160. Ten candidates obtained the 'Full' certificate for mechanized vessels of up to sixty tons net, and the remaining 150 candidates obtained 'Modified' certificates for fishing craft of under 1,000 piculs capacity. In all, a total of 1,122 fishermen have received Coxswains' Certificates following departmental training, since the classes commenced.

Engineering Classes

216. A total of 165 fishermen trained by the Department have passed the Marine Department examination, especially designed for fishing boats mechanized with diesel engines. These courses of training commenced in 1954 and nineteen classes have been held to date.

Miscellaneous Classes

217. Further classes of local fishermen were shown how to cut beam trawls out from machine-made sheet netting; this being much quicker and easier than hand braiding the nets. Lecture notes, with adequate diagrams, were then issued.

Radio Broadcasting

218. *The 'Farmers' Week' Programme.* For the last three years this programme has been regularly broadcast in Cantonese over Radio Hong Kong and has now established itself as an important and popular item, especially with the rural community in the New Territories. The programmes provided opportunity for discussion of important farming topics and every opportunity was taken to include farmers and fishermen in broadcasts which were recorded in the field. A list of the more important topics discussed on this programme during the past year is given in Appendix 20. During this programme items of news and interest were also relayed, as well as information on current market prices and trends; farmers' letters and questions were answered.

219. *The 'Happy Farmer' Programme.* This second programme was one in which the Department was indirectly concerned, in that it is a Cantonese entertainment programme devised by Radio Hong Kong, to whom this Department acted as an adviser. Programmes were broadcast weekly and included folk songs, Chinese opera, contemporary Chinese songs, story-telling and usually some form of farming quiz in which local villagers participated. At the end of the year it was decided that the current series of programmes should be taken off the air and a short series of six 'Happy Fishermen' programmes followed by eight feature programmes was inaugurated.

220. *Weather Reports and Special Broadcasts for Fishermen.* Following a meeting between leading fishermen, a representative from the Royal Observatory and officers of the Fisheries Division, the manner in which weather forecasts were delivered and broadcast over the radio was revised with effect from the 1st January. Under the revised system wind forces are expressed in Beaufort numbers and the areas for which the forecasts are given are announced in a manner readily understandable by the fisherfolk.

221. Commencing on the 15th February, Radio Hong Kong initiated a weekly programme series concerning the work of the Fisheries Division. These programmes were in a question-and-answer form and dealt with the training of fishermen in such subjects as navigation and diesel engine operation and maintenance.

Film Shows for Farmers and Fishermen

222. During the year 18,860 people saw films, prepared by the Department, at fifty showings in various villages throughout the New Territories. A list of the films from which showings were made is given

in Appendix 21. Plans were prepared during the year for a more intensive programme of film shows to be given in future and arrangements were well in hand for future showings at 150 different villages per year. In addition, the scope of programmes was broadened by the inclusion of selective films provided from sources other than the Department.

Visits to Stations

223. A total of 994 students from twelve different schools and Grantham Training College visited departmental stations during the year. In addition local farmers regularly visited stations, either individually or in parties. A list of overseas visitors to the department is given in Appendix 24.

The Agricultural Show

224. The annual Agricultural Show was held at Yuen Long Public School for three days from 16th to 18th January, 1960. His Excellency the Governor graciously opened the Show on the 16th and, accompanied by Lady BLACK, Sir Edric M. BASTYAN, K.B.E., C.B., Commander of British Forces, and Lady BASTYAN, toured exhibits and met exhibitors. The Hon. C. E. M. TERRY, accompanied by Mrs. TERRY, presented prizes and certificates to successful exhibitors in the afternoon of the second day. Considerable effort and work was put into the Show, and with great effect, by exhibitors, commercial concerns and departmental officers. The entries this year continued to maintain the high standards of previous years and in many cases showed improvement. The divisional exhibitions of this Department were greatly improved and extremely effective. It would be inappropriate to make especial mention of any one exhibit. Once again, the Department records its thanks to the Hon. Director of Education and Headmasters of the Yuen Long Primary and Middle Schools for the use of their facilities, and to the Members of the Show Committee, both unofficial and official, for the assistance rendered by them.

'Tree Planting Week'

225. During the second week of April 7,000 school children, ably instructed by the example of eminent citizens and representatives of the rural community, planted trees at five main and twenty four subsidiary centres throughout the New Territories and Hong Kong Island. Already the results of previous tree planting festivals are becoming noteworthy

and providing a most realistic demonstration of the benefits accruing from afforestation.

LAND UTILIZATION AND SOIL SURVEY

226. During the year the soil survey of the arable lands of the New Territories was completed and the Department now possesses further basic data to enable it to deal with land utilization in a more scientific manner. As a result of a truer understanding of soil types and classification, it is now possible to undertake investigational work with a view to more precise forecasting of results in comparable soil type areas. The soil survey report has now been printed and readers are therefore referred to '*Soil Survey Memoir.*'

227. As a result of the completion of the soil survey, changes were made within the section which foreshadowed further reorganization of the Department, and at the end of the year two distinct services were provided. The Land Utilization and Survey Service was subordinated to an assistant professional officer now specializing in agricultural economics and the analytical section of the Soil Survey merged with certain laboratory staff, previously attached to the Forestry Division, to form a new Laboratory Service section of the Department. The latter was placed under the supervision of the Senior Soils Technician, also of assistant professional standing.

Land Utilization and Survey

228. Latest information on Land Use in the Colony compared with the previous year is recorded at Appendix 23. Points of interest are:

- (i) A total of 31,107.06 acres are devoted to cropping, a gain of 332.06 acres on the previous year.
- (ii) There has been a reduction in the area under paddy by 510.31 acres.
- (iii) The area under vegetables has increased by 525.23 acres.
- (iv) The area under orchards has increased by 33.93 acres.
- (v) The area under field crops has increased by 303.21 acres.
- (vi) The new area under crops includes 341.43 acres of previously abandoned land brought back to cultivation and 10.63 acres of newly opened land.
- (vii) Area under forest increased by 4.077 acres to a total of 12,000 acres.
- (viii) The area devoted to pond fish culture as at the end of the year was 592.58 acres.

229. Detailed surveys of departmental stations and soil relationships thereon continued during the year. Similar surveys in relation to demonstration of fruit orchards were initiated.

Laboratory Service

230. At the end of the year the laboratory was fully equipped to deal with all major analyses that may be required in agricultural investigation. The spectrophotometer ordered during the previous year, for element identification was received, and put to good use. Various analyses were carried out not only of soils but also of feeding stuffs, fertilizers and fish pond water. During the year 150 samples were analysed each sample requiring up to seventeen special investigations.

PART 8

CONFERENCES AND COMMITTEES

231. The Assistant Director, Mr. E. H. NICHOLS, attended the Eighth Working Party on Rice Production and Protection and the Seventh Working Party on Rice Soils, Water and Fertilizer Practices held under the auspices of the International Rice Commission, F.A.O.—United Nations, in Ceylon from the 14th to the 19th December, 1959. The Senior Veterinary Officer, Mr. D. M. CORBETT, attended the Fourth Joint F.A.O./O.I.E. Far East Meeting on Animal Health in Manila from the 7th to the 12th December, 1959. Mr. CORBETT also attended the Annual Conference of the Australian Veterinary Association held in Brisbane and toured Veterinary Research Stations and Vaccine Production Centres throughout Australia between the 12th May and the 14th June, 1959. The Forestry Officer, Mr. P. A. DALEY, attended the Fifth Session of the Asia Pacific Forestry Commission held in New Delhi between the 8th and the 18th February, 1960. Mr. DALEY also took part in the study tour of Indian forests which preceded the Session. The Veterinary Officer, Mr. J. M. RIDDELL-SWAN, attended the First Regional Seminar on Veterinary Public Health held under the auspices of the F.A.O. in Tokyo from the 20th April to the 1st May, 1959.

232. The Executive Committee of the Indo-Pacific Fisheries Council met in Hong Kong during October. In addition to taking part in the deliberations at the meetings, officers of the Department took visitors to places of local fisheries interest.

233. The Director attended all meetings held during the year of the Rural Development Committee. The Fisheries Advisory Committee met three times during the year and was attended by both the Director, who is Chairman of the Committee, and the Fisheries Officer, who is a member. There were twenty four meetings of the Committee of the Kadoorie Agricultural Aid Loan Fund during the year. The Director, as Chairman and Trustee of this Fund, presided at meetings of this Committee, which includes Messrs. L. and H. KADOORIE, E. H. NICHOLS, Assistant Director, D. M. CORBETT, Senior Veterinary Officer, and T. S. Woo, Senior Credit Officer. The fore-mentioned are also members, in a private capacity, of the Kadoorie Agricultural Aid Association, the meetings of which were held in conjunction with meetings of the Loan Fund Committee. Towards the end of the year the first meeting was held of the Wild Life Conservation Advisory Committee, of which the Director is Chairman and the Senior Veterinary Officer a Member.

PART 9

STAFF

234. Mr. A. F. ROBERTSON, Forestry Officer, departed on vacation leave prior to resignation on the 27th April, 1959. Mr. P. A. DALEY, Forestry Officer, on transfer from Nigeria, arrived on the 27th July, 1959. Mr. R. J. V. EVEREST, Senior Forestry Supervisor, acted as Forestry Officer from the 27th April to the 26th June, 1959. Mr. D. M. CORBETT, Senior Veterinary Officer, returned from vacation leave on the 6th June, 1959. Mr. J. M. RIDDELL-SWAN, Veterinary Officer, who had acted as Senior Veterinary Officer during Mr. CORBETT's absence, proceeded on vacation leave on the 10th March, 1960. Mr. Y. S. YU, Assistant Fisheries Officer, acted as Fisheries Officer from the 1st April to the 6th July, 1959. Mr. W. D. ORCHARD, Fisheries Officer, returned from vacation leave on the 6th July, 1959.

235. Mr. C. T. WONG, Assistant Agricultural Officer, successfully completed the post-graduate course at the Imperial College of Tropical Agriculture, Trinidad, and was awarded the Diploma of Tropical Agriculture (Trin.). He returned to duty on the 12th August, 1959 after visiting agricultural research centres and places of interest in the United States of America *en route*.

236. During the year Messrs. CORBETT and RIDDELL-SWAN were each awarded their M.R.S.H.

237. *In-Service Training.* During the year a more formal series of in-service training courses and seminars was inaugurated. These in-service training facilities were primarily directed at making readily available to serving officers information and data to keep them abreast of current developments in the particular fields of the scientific disciplines with which they are concerned. Training was carried out at more than one level providing for assistant professional, senior technical and junior technical requirements.

238. Both the Senior Veterinary Officer and Veterinary Officer lectured and examined Health Inspectors and Health Visitors in accordance with the requirements of the Royal Society of Health. The Assistant Director lectured and assisted in discussions in a Seminar on World Population and Food Production given under the auspices of the Extra-Mural Studies Department of the University of Hong Kong.

239. A list of senior staff may be found at Appendix 25.

ACKNOWLEDGMENTS

240. It is with considerable pleasure that the following acknowledgments are made: to His Excellency the Governor and Lady BLACK for graciously opening the Agricultural Show; to the Hon. C. E. M. TERRY and Mrs. TERRY for presenting Show prizes; to Sir Edric M. BASTYAN, K.B.E., C.B. and Lady BASTYAN for their continued interest not only in the Agricultural Show but in the work of the Department in general; to those members of the public, the Services and other Government Departments who served on the Agricultural Show Committee or otherwise assisted; to the school children and members of the public who co-operated with the Forestry Division in making the annual 'Tree Planting Week' a most successful event; to the many firms who supplied valuable information on their agricultural and livestock products; to Messrs. Lawrence and Horace KADOORIE for their continued and ever-increasing practical interest in the welfare of the people of the New Territories; to the United States, Netherlands and Japanese Consuls-General, the Thai Consul and the Canadian Trade Commissioner for making available technical information and statistics from their respective countries; and to the Thai Government for making available at regular intervals important vaccines for the control of diseases.

241. I would particularly like to express my personal appreciation of the services of all the staff in my Department, whether in the field or in the office, who have with enthusiasm worked so hard and effectively in the interests of the primary producer.

E. H. NICHOLS, B.Sc. (Dunelm);
Dip. Agri. (Cantab.); A.I.C.T.A.,
*Acting Director of Agriculture
and Forestry.*

September 1960.

APPENDIX 1

METEOROLOGICAL DATA 1959/60

Month			Temperature			Mean Relative Humidity	Total Rainfall in m.m.		Total Sunshine hours	
			Mean Max.	Mean	Mean Min.			Normals		Normals
			°F	°F	°F					
April,	1959	...	77.6	72.5	68.9	84	294.0	136.2	124.8	113.5
May	„	...	83.1	78.5	75.2	84	90.0	286.1	186.5	155.5
June	„	...	87.6	82.5	78.6	85	913.7	388.3	142.2	160.5
July	„	...	87.9	82.4	78.3	85	352.5	386.0	198.0	210.4
August	„	...	87.0	82.1	77.9	85	603.8	363.3	179.0	201.1
September	„	...	85.6	80.5	76.5	82	281.0	264.6	195.2	198.1
October	„	...	83.6	77.4	73.0	66	1.0	111.2	277.3	216.7
November	„	...	77.8	71.6	67.5	70	0.1	42.5	237.6	185.6
December	„	...	71.0	65.8	61.8	74	5.4	26.2	142.1	171.5
January,	1960	...	67.1	61.1	57.1	70	15.0	31.9	169.3	145.2
February	„	...	70.2	63.3	58.7	70	Trace	44.6	240.2	98.1
March	„	...	75.9	70.2	66.4	86	64.5	72.6	95.1	95.0
Mean	...	...	79.5	73.99	69.99	78	—		—	
Total	...	...	—	—	—	—	2,621.1		2,187.3	

NORMALS (1884-1939; 1947-1950)

	76.7	72.0	68.4	78	2,152.8		1,951.7	
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APPENDIX 2

SUMMARY OF PRIMARY PRODUCTION

(NEAREST \$1,000)

<i>Item</i>			<i>Value 1957/58 \$</i>	<i>Value 1958/59 \$</i>	<i>Value 1959/60 \$</i>	<i>Remarks 1959/60</i>
Paddy	...	...	18,239,000	22,271,000	18,548,000	1st Crop \$31 per picul. 2nd Crop \$41 per picul.
Vegetable	...	...	25,004,000	32,634,000	36,989,000	Records of Marketing Dept. & value of produce consumed by 50,000 New Territories families estimated \$3,699,000.
Fruit	...	...	1,496,000	2,000,000	3,136,000	Increasing production. Price relatively stable.
Sweet Potato	...	...	6,425,000	6,400,000	6,344,000	
Export Crops	...	...	2,736,000	2,041,000	2,811,000	Exported under Certi- ficate of Origin.
Rice Straw	...	...	3,090,000	3,090,000	2,371,000	\$4.00 to \$6.00 per picul.
Poultry	...	...	4,000,000	19,489,000	38,400,000	Estimated on census figures at \$8.00 per bird.
Eggs	...	...	200,000	2,583,000	4,353,000	
Ducks	...	...	2,505,000	6,072,000	7,100,000	Export figures plus local consumption at \$7.00 each, on census figures.
Duck Eggs	...	...	-	566,000	445,000	
Pigeons	...	...	875,000	336,000	826,000	Estimated on census figures at \$7.00 per pair of squabs.
Quail	...	...	19,000	7,000	9,000	At \$1.00 per bird.
Quail Eggs	...	...		67,000	81,000	Eggs at 80c. per dozen.
Geese	...	...	160,000	795,000	910,000	On census figures at \$10.00 each.
Goose Eggs	...	...		69,000	146,000	
Pigs	...	...	26,666,000	40,886,000	36,303,000	At \$200.00 per picul and 65 catties average weight.

APPENDIX 2—*Contd.*

<i>Item</i>			<i>Value</i> 1957/58 \$	<i>Value</i> 1958/59 \$	<i>Value</i> 1959/60 \$	<i>Remarks</i> 1959/60
Cattle	...	...	1,869,000	2,376,000	1,558,000	At \$4.80 per catty average weight 260 catties.
Fresh Milk	...	...	10,900,000	10,822,000	12,450,000	
Misc. Animal Products	...	...	—	7,401,000	22,846,000	
Marine Fisheries	...	...	64,930,000	58,369,000	69,446,000	Market figures + 10% eaten by fishermen + 15% landed in China.
Fresh Frozen Shrimp	...	...	4,603,000	7,538,000	785,000	The American authorities prohibited all imports of prawns and shrimps with effect from June 1959.
Pond Fish	...	...	1,700,000	1,450,000	2,400,000	Improved production and higher prices.
Oyster and Oyster Sauce	...	...	1,750,000	1,500,000	2,465,000	Increased production and higher prices for fresh oyster meat.
Fresh Shrimp	...	...	48,000	61,000	82,000	Exported in the form of slices and noodles.
Silver Shrimp	...	...	87,000	38,000	81,000	Exported as paste and sauce.
Spotted Fish	...	...	153,000	107,000	36,000	Poor year.
Fan Mussel	...	...	112,000	92,000	160,000	Higher prices, very slight increase in production.
Seaweed	...	...	—	—	17,000	Exported to Bangkok.
Forest Products	...	...	41,000	423,000	41,000	Sale of decayed and over-mature camphor trees and fire-wood.
Total	...	...	\$177,608,000	\$229,483,000	\$271,139,000	

Circle	District	2-Crop Paddy			1-Crop Paddy			1-Crop Brackish Water Paddy			Total				
		Area in acres	Yield in piculs	1st Crop Value in \$ @ \$31 per picul	Yield in piculs	2nd Crop Value in \$ @ \$41 per picul	Area in Acres	Yield in piculs	Value in \$ @ \$31 per picul	Area in Acres	Yield in piculs	Value in \$ @ \$30 per picul	Production piculs	Value \$	Area in acres
West	Castle Peak ...	1,544.48	19,460	603,260	22,241	911,881	—	—	—	20.00	300	9,000	42,001	1,524,141	1,564.48
	Ping Shan ...	1,197.74	15,092	467,852	17,247	707,127	—	—	—	1,256.88	18,853	565,590	51,192	1,740,569	2,454.62
	Yuen Long ...	1,917.60	24,162	749,022	27,613	1,132,133	—	—	—	81.44	1,222	36,660	52,997	1,917,815	1,999.04
	Kam Tin ...	2,212.76	27,881	864,311	31,864	1,306,424	—	—	—	121.68	1,825	54,750	61,570	2,225,485	2,334.41
	San Tin ...	1,303.27	16,412	508,772	18,767	769,447	—	—	—	1,187.68	17,815	534,450	52,952	1,812,669	2,490.95
North East	Sha Tau Kok ...	1,021.99	11,037	342,147	12,264	502,824	70.00	672	20,832	125.27	1,879	56,370	25,852	922,173	1,217.26
	Fauling ...	782.96	9,396	291,276	10,805	443,005	—	—	—	—	—	—	20,201	734,281	782.96
Tolo Harbour	Ta Kwa Ling ...	2,012.88	24,155	748,805	24,155	990,355	90.00	864	26,784	—	—	—	49,174	1,765,944	2,102.88
	Sheung Shui ...	1,086.09	13,033	404,023	14,990	614,590	—	—	—	75.00	1,125	33,750	29,148	1,052,363	1,161.09
	Tai Po ...	1,572.34	20,755	643,405	20,755	850,955	12.00	115	3,565	—	—	—	41,695	1,497,925	1,584.31
	Sai Kung N. ...	576.12	7,605	235,735	7,605	311,805	5.00	48	1,488	—	—	—	15,258	549,048	581.12
	Sai Kung S. & Hang Hau ...	1,038.07	12,291	381,021	13,657	559,937	—	—	—	—	—	—	26,248	949,958	1,058.07
South	Tsuen Wan ...	288.89	3,467	107,477	3,467	142,147	—	—	—	2.00	30	900	6,964	250,524	290.89
	Sha Tin ...	712.39	8,549	265,019	9,404	385,564	—	—	—	10.00	150	4,500	18,103	655,083	722.39
	Lamma ...	81.72	981	30,411	981	40,221	—	—	—	—	—	—	1,962	70,632	81.72
Lantau East	Lantau East ...	638.50	6,896	213,776	6,896	282,736	—	—	—	—	—	—	13,792	496,512	638.50
	Lantau West ...	489.94	5,291	164,021	5,291	216,931	—	—	—	5.00	75	2,250	10,657	383,202	494.94
Lantau West	Total ...	18,477.74	226,463	7,020,353	248,002	10,168,082	177.00	1,699	52,699	2,904.95	43,574	1,307,220	519,738 or 31,442 Metric tons	18,548,324	21,559.69

APPENDIX 4

QUANTITY AND VALUE OF VEGETABLES PRODUCED IN THE COLONY
AND SOLD THROUGH VEGETABLE MARKET

1958/59 v.s. 1959/60

Kind	1958/59		1959/60	
	Yield in Catties	Value in \$	Yield in Catties	Value in \$
Cabbage, Flowering	14,739,522 $\frac{1}{2}$	3,994,410.97	18,657,723 $\frac{3}{4}$	4,748,066.80
Cabbage, White	29,697,026 $\frac{1}{4}$	4,808,320.82	36,322,840 $\frac{1}{4}$	5,191,546.90
Cabbage, Leaf Mustard	8,791,168 $\frac{3}{4}$	1,511,404.53	11,644,557 $\frac{1}{4}$	1,729,593.12
Kale, Chinese	6,578,336 $\frac{3}{4}$	1,832,335.64	9,080,461	2,128,543.32
Sweet Potato	2,343,963 $\frac{1}{2}$	337,770.57	2,157,362	339,234.76
Tomato	2,957,185 $\frac{3}{4}$	665,542.35	5,809,531 $\frac{3}{4}$	784,361.68
Water Cress	3,881,530 $\frac{1}{2}$	1,096,029.87	5,248,129 $\frac{1}{2}$	1,305,447.86
Onion, Spring	2,557,488 $\frac{1}{2}$	688,562.30	3,521,133 $\frac{1}{4}$	863,482.33
Turnip	4,642,892 $\frac{3}{4}$	739,096.75	4,408,529	758,090.67
Lettuce, Chinese	6,984,863	896,486.18	7,772,677 $\frac{3}{4}$	883,399.60
Spinach, Chinese	1,070,677	199,294.95	1,953,881 $\frac{1}{4}$	389,778.14
Spinach	3,481,972 $\frac{3}{4}$	746,633.37	2,617,965 $\frac{1}{4}$	640,388.18
Spinach, Water	4,416,289	488,209.47	6,257,997	1,150,191.94
Chinese Chives	1,870,958 $\frac{1}{4}$	464,689.28	1,907,510	445,850.27
Brinjal	1,145,233 $\frac{1}{2}$	217,242.92	2,123,262 $\frac{1}{2}$	430,757.94
Cucumber	2,075,813 $\frac{3}{4}$	289,727.79	2,729,412 $\frac{3}{4}$	503,755.03
Bean, String	4,678,401 $\frac{3}{4}$	1,593,937.13	5,027,166	2,338,655.91
Yam Bean	453,771	68,909.31	529,232 $\frac{1}{2}$	136,050.79
Taro	356,866	71,156.29	432,445	184,171.53
Miscellaneous	37,315,793 $\frac{1}{4}$	8,660,495.56	28,613,147	8,338,625.20
Total	140,039,754 $\frac{1}{2}$	29,370,238.05	156,895,965 $\frac{1}{4}$	33,289,991.97
	or 84,718.54 Metric tons		or 94,915.89 Metric tons	

APPENDIX 5

VEGETABLES GROWN IN THE NEW TERRITORIES, 1958/59 AND 1959/60 (PRODUCTION BY DISTRICT)

	Districts					1958/59 (piculs)	1959/60 (piculs)
1.	Kowloon	...	...	...	...	65,473.80	72,662.22½
2.	Sha Tin	...	...	...	...	2,977.57½	4,128.39
3.	Tai Po	...	...	...	...	97,159.00¼	109,574.55¾
4.	Fanling	...	...	...	...	393,659.36	420,374.07¼
5.	Sheung Shui	...	...	...	...	254,784.41¾	302,241.71½
6.	San Tin	...	...	...	...	110,834.91½	98,220.17¾
7.	Yuen Long	...	...	...	...	106,909.75¾	127,603.70
8.	Kam Tin	...	...	...	...	130,394.55½	171,332.05¾
9.	Castle Peak	...	...	...	...	201,074.35½	223,636.98¾
10.	Tsuen Wan	...	...	...	...	37,129.81	39,185.87
	Total	...	...	...	...	1,400,397.54½	1,568,959.65¼

APPENDIX 6

FRUIT PRODUCTION (1959/60)

Name of Fruit Trees	No. of Plants	Quantity of Fruits (Catties)	Value of Fruit \$
Sweet Orange	4,500	76,500	114,750.00
Tangerine... ..	20,000	400,000	600,000.00
Foreign Lemon	200	5,000	2,000.00
Local Lime	15,000	390,000	175,500.00
Pumelo	1,900	95,000	23,750.00
Mandarin	1,500	15,000	22,500.00
Calamondin (Mostly in pots)	1,700	6,800	6,800.00
Kumquat (Mostly in pots)	1,200	1,500	1,800.00
Wong Pei	7,800	195,000	195,000.00
Lychee	18,900	812,700	975,240.00
Longan	4,600	184,000	276,000.00
Papaya (ripe)	18,000	360,000	126,000.00
Guava	19,000	285,000	85,500.00
Banana	4,800	168,000	33,600.00
Chinese Olive	5,500	330,000	99,000.00
Carambola	1,100	16,500	8,250.00
Mango	850	34,000	20,400.00
Yanmin	370	66,600	39,960.00
Plum	350	8,750	1,750.00
Persimmon	360	12,600	3,780.00
Sand Pear	100	3,500	1,050.00
Japanese Apricot	7,600	190,000	95,000.00
Peaches (Edible)	6,200	372,000	148,800.00
Pineapple... ..	120,000	180,000	72,000.00
Miscellaneous	12,500	18,750	7,500.00
Total	274,030	4,227,200	3,135,930.00

EXPORT CROPS

No.	Crop	1958/59			1959/60		
		Quantity (Piculs)	Unit Price \$	Amount \$	Quantity (Piculs)	Unit Price \$	Amount \$
1.	Vegetable Seeds	13.40	200.00	2,680.00	189.43	500.00	94,715.00
2.	White Cucumber	487.63	11.20	5,461.83	782.00	14.62	11,435.52
3.	Bitter Cucumber	386.69	34.73	13,421.35	81.35	66.30	5,393.76
4.	Mushroom	44.46½	459.42	20,428.10	10.70	577.07	6,174.75
5.	Taro	1,358.59	26.33	35,765.54	979.54	41.22	40,375.80
6.	Ginger	3,328.65½	48.64	128,639.34	3,030.91	45.62	138,293.55
7.	Lotus Root	456.00	45.19	20,609.45	581.80	56.79	33,046.00
8.	Lotus Seeds	66,748.00 (fruits)	.30	20,024.40	6,298.00 (fruits)	.42	2,638.80
9.	Yam	240.29	25.95	6,237.65	450.48	40.00	18,019.20
10.	White Cabbage	1,773.24	16.90	29,974.98	3,172.10	17.51	55,536.60
11.	Radish	310.86	18.22	5,664.00	715.49	29.79	21,318.65
12.	Turnip	1,182.62	25.47	30,120.24	3,196.49	29.88	95,516.56
13.	Mustard	889.53	16.61	14,777.60	1,322.33	8.55	11,306.03
14.	Waterchestnut	32,495.47	44.69	1,452,436.85	35,163.43	45.57	1,602,616.65
15.	Arrowhead	—	—	—	866.49	150.72	130,601.10
16.	Lychee	1,648.94	92.78	152,989.85	4,522.85	101.01	458,869.00
17.	Lemon	809.56	44.99	36,426.55	563.96	65.77	37,094.21
18.	Wong Pei	85.50½	46.94	4,013.25	229.00	62.61	14,337.50
19.	Japanese Apricot	930.25	41.36	38,478.37	341.85	60.00	20,511.00
20.	Olive, White	335.17	37.25	12,487.80	250.85	30.92	7,757.90
21.	Olive, Black	189.29	55.22	10,453.05	52.16	38.00	1,982.00
22.	Seagrass	—	—	—	185.00	24.00	4,440.00
Total		—	—	2,041,089.93	—	—	2,811,979.58

FERTILIZER TRIALS ON TYPICAL RICE SOILS

SERIES A

A series of trials, testing four levels of N, P and K, were carried out in six localities (four soil types) during the second-crop season. Experimental design was that of a 4×4 Latin square.

Treatments were as follows:

- (i) *Nitrogen*: Nitrogen levels of nil, 30 lb., 60 lb. and 90 lb. N per acre were applied in the form of Ammonium Sulphate. Plots received standard dressings of 30 lb. P_2O_5 (Superphosphate) and 30 lb. K_2O (Muriate of Potash) per acre.
- (ii) *Phosphorus*: Phosphorus levels of nil, 30 lb., 60 lb. and 90 lb. P_2O_5 per acre were applied as Superphosphate. Plots received standard dressings of 30 lb. N (Ammonium Sulphate) and 30 lb. K_2O (Muriate of Potash) per acre.
- (iii) *Potassium*: Potash levels of nil, 30 lb., 60 lb. and 90 lb. K_2O per acre in the form of Muriate of Potash were applied. Plots received standard dressings of 30 lb. N (Ammonium Sulphate) and 30 lb. P_2O_5 (Superphosphate) per acre.

Site (a): Northwest Circle—Tai Hong Wai

Soil Type—Chek Nai Ping (poorly drained).

Results:

- First Crop*:— Nitrogen—Yield increases were obtained up to the 60 lb. per acre level.
Phosphorus—No appreciable yield differences recorded.
Potassium—Yield increases were obtained up to the 60 lb. per acre level.
- Second Crop*:— Nitrogen—Yield increases were obtained at the 30 lb. level.
Phosphorus and Potassium—No appreciable yield differences recorded.

Site (b): Tolo Harbour Circle—Cha Hang

Soil Type—Chek Nai Ping (very poorly drained).

Results:

- First Crop*:— Nitrogen and Phosphorus—No appreciable yield differences recorded.
Potassium—Treatment tended to depress yield.
- Second Crop*:— Nitrogen—No appreciable yield differences recorded.
Phosphorus and Potassium—Yield increases were obtained at the 30 lb. per acre level.

Site (c): North-West Circle—Mai Po

Soil Type—Mai Po (poorly drained).

Results:

- First Crop*:— Nitrogen—Marked response to treatment. Phosphorus and Potassium—Treatment tended to depress yield.
- Second Crop*:— Nitrogen—Marked response to treatment. Phosphorus and Potassium—Yield increases were obtained at the 30 lb. per acre level. Potassium—No yield response recorded.

APPENDIX 8—Contd.

SERIES A—Contd.

Site (d): *Northeast Circle—Sheung Shui Wai*

Soil Type—Mai Po (poorly drained).

Results:

First Crop : - - Although crop badly damaged by flood in mid-June, there was marked response to all treatments.

Second Crop :— Nitrogen and Phosphorus—No yield responses recorded.
Potassium—Treatment tended to depress yield.

Site (e): *Tolo Harbour Circle—Ping Long*

Soil Type—Lam Tsuen (imperfectly drained).

Results:

First Crop :— Nitrogen—No marked response to treatment. Phosphorus and Potassium—No responses to treatment were recorded.

Second Crop :— Nitrogen and Potassium—Yield increases were obtained at the 30 lb. per acre level. Phosphorus—Treatment tended to depress yield.

Site (f): *West Circle—Shun Fung Wai*

Soil Type—Sun Hing (poorly drained).

Results:

First Crop :— Nitrogen—Yield increases were obtained up to the 60 lb. per acre level.

Phosphorus—No yield responses recorded.

Potassium—Yield increases were obtained at the 30 lb. per acre level.

Second Crop :— Nitrogen—Yield increases were obtained up to the 60 lb. per acre level.

Phosphorus—Yield increases were obtained at the 30 lb. per acre level.

Potassium—Treatment tended to depress yield.

SERIES B

A second series of trials testing N, P and K were carried out at four localities (three soil types). Experimental design was that of four randomized blocks each containing six plots.

Treatments were as follows:

Control (no fertilizer).

Nitrogen at two levels, 30 lb. and 60 lb. per acre.

N and P_2O_5 both at 30 lb. per acre.

N and K_2O both at 30 lb. per acre.

N, P_2O_5 and K_2O all at 30 lb. per acre.

The fertilizers used were Ammonium Sulphate, Superphosphate and Muriate of Potash.

APPENDIX 8—Contd.

SERIES B—Contd.

Site (a): Northeast Circle—Ping Che

Soil Type—Fanling (very poorly drained).

Results :

First Crop :— Nitrogen—Response at 30 lb. per acre; there was no additional response to P_2O_5 K_2O alone or in combination in the presence of nitrogen.

Second Crop :— Nitrogen—Response at 30 lb. per acre; in the presence of nitrogen there was no response to either Phosphorus or Potassium, alone or in combination.

Site (b): Tolo Harbour Circle—Shun Wan

Soil Type—San Hing (very poorly drained).

Results :

First Crop :— Nitrogen—Response at the 30 lb. per acre level; in the presence of nitrogen there was no marked response to either P_2O_5 or K_2O , alone or in combination.

Second Crop :— Nitrogen—Response up to the 60 lb. per acre level; in the presence of nitrogen there was response to Phosphorus but no response to Potassium, there was a reduced response to Phosphorus and Potassium in combination.

Site (c): West Circle—Lo Uk Tsuen

Soil Type—Chek Nai Ping (poorly drained).

Results :

First Crop :— Nitrogen—Marked response up to the 60 lb. per acre level; in the presence of nitrogen there was response to both Phosphorus and Potassium both alone and in combination. (A certain amount of flood damage occurred, but negligible effect).

Second Crop :— Nitrogen—Marked response up to the 60 lb. per acre level; in the presence of nitrogen there was no marked response to either Phosphorus or Potassium, alone or in combination.

Site (d): Southeast Circle—Tai Mong Tsai

Soil Type—San Hing (poorly drained).

Results :

First Crop :— Nitrogen—Response at the 30 lb. per acre level; in the presence of nitrogen there was a response to Phosphorus, but no response to Potassium, which reduced response in combination.

Second Crop :— The occurrence of blast disease, *Piricularia oryzae*, obscured the effects of fertilizer treatment, but there were indications that nitrogen progressively increased susceptibility to the disease.

APPENDIX 9

ANIMALS ADMITTED FOR SLAUGHTER 1959/60

(a) *Imported Animals Admitted for Slaughter*

Source	Swine	Cattle	Sheep	Goats
Mainland China	753,376	80,530	40	12,255
Cambodia	49,612	10,593	—	40
Thailand	56,757	41,786	—	405
Taiwan	78,268	—	—	—
Australia	—	5,539	919	180
Okinawa	16,387	—	—	—
Vietnam	2,712	329	—	588
Japan	77	—	—	—
Indonesia	4,177	4,957	—	—
South Korea	4,155	—	—	—
Total	965,521	143,734	959	13,468

(b) *Local Animals Admitted for Slaughter*

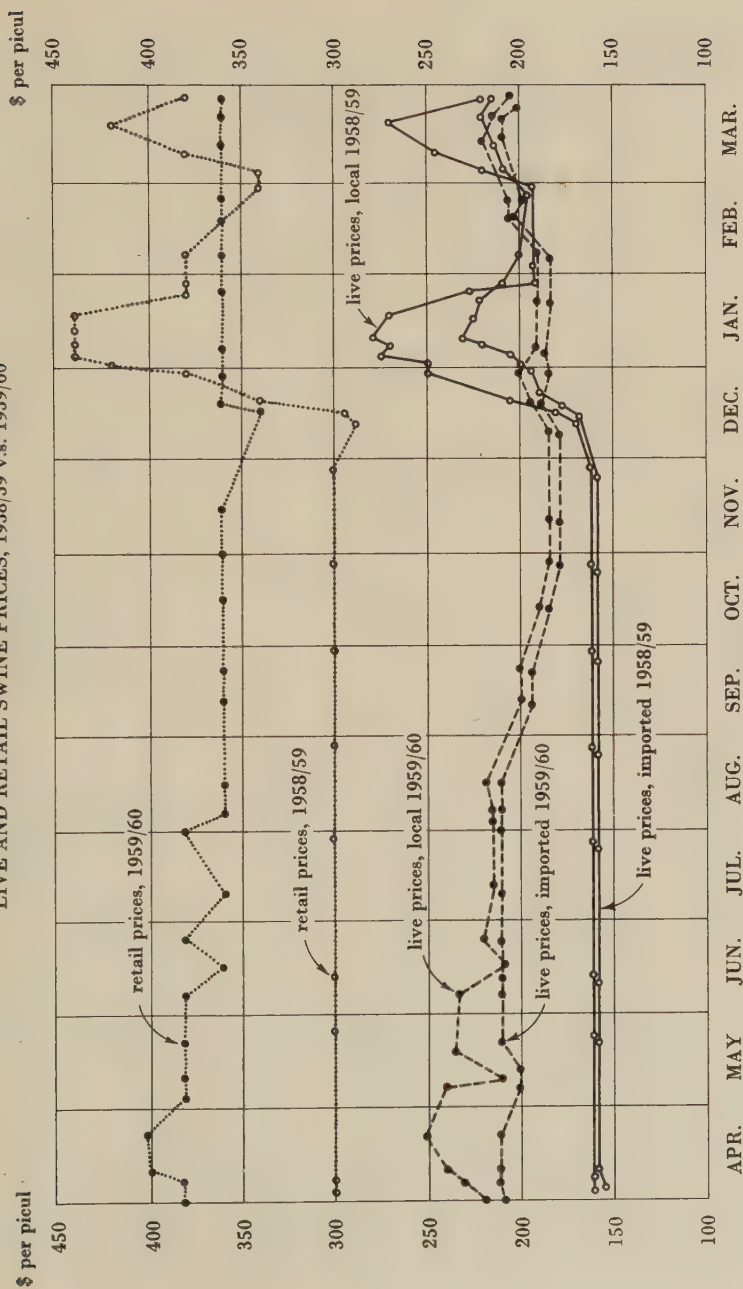
Animal Depots	Swine	Cattle	Sheep	Goats
Urban	131,529	990	—	138
New Territories	116,959	2,256	—	—
Total	248,488	3,246	—	138

(c) *Imported and Local Animals Admitted for Slaughter*

	Swine	Cattle	Sheep	Goats
Grand Total	1,214,009	146,980	959	13,606

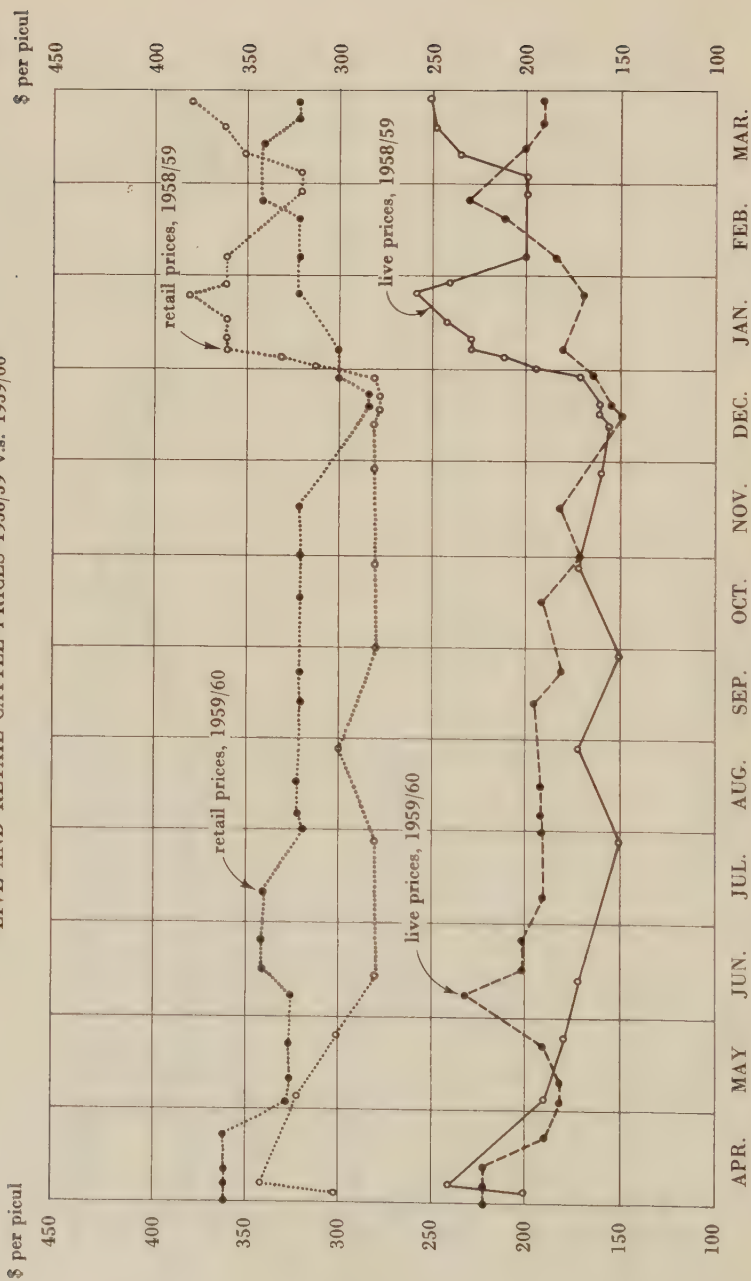
APPENDIX 10A

LIVE AND RETAIL SWINE PRICES, 1958/59 v.s. 1959/60



APPENDIX 10B

LIVE AND RETAIL CATTLE PRICES 1958/59 v.s. 1959/60



APPENDIX 11

STATISTICS OF ANIMALS, BIRDS AND REPTILES AND ANIMAL PRODUCTS INSPECTED AND CERTIFIED FOR THE YEAR 1959/60

<i>Animals</i>	<i>No.</i>
Dogs	243
Cats	14
Monkeys	5,867
Gibbons	83
Civet Cats... ..	5
Elephants... ..	11
Tigers	4
Leopards	2
Bears	2
Orang-Utan	1
Squirrels	5
Kangaroo	1
Marten	1
Rat	1
Calf	1
Deer	1
Fruit Bats	4
Seals	3
Horses	18
Chimpanzees	6
Mouse Deer	2
Badger	1
Porcupines	3
Dairy Cattle	10
Loris	1
Total	6,290
<i>Birds</i>	
Cage Birds	182,030
Pheasants... ..	23
Quails	1,346
Pigeons	1,925
Total	185,324
<i>Reptiles</i>	
Crocodiles... ..	23
Pythons	18
Lizard	1
Turtles	2,316
Salamanders	2
Total	2,360
<i>Tropical Fishes</i>	8,079
<i>Insects</i>	
Bees	2 Boxes

APPENDIX 11—*Contd.*

Description of Commodity	Wt. in lb.	Average Price/lb. \$	Total Value \$
Cattle Hides	2,486,638	1.90	4,724,612
Feathers	415,796	2.50	1,039,490
Cattle Horn & Hoof	2,087,043	0.35	730,465
Horse Tail Hair	12,000	4.00	48,000
Bone Meal	1,980,000	0.14	277,200
Hide Cuttings	999,306	0.22	219,847
Raccoon Hair	1,649	95.00	156,655
Pen Wool	1,850	20.00	37,000
Raw Wool	2,760,109	4.20	11,592,458
Deer Horn	2,226	180.00	400,680
Gall-Stones	231	1,000.00	231,000
Goat Hair	38,650	15.00	579,750
Misc. Animal Hair	17,679	10.00	176,790
Misc. Animal Hides	37,911	2.00	75,822
Donkey Hides	20,559	1.50	30,838
Misc. Frozen Meat	13,160	5.00	65,800
Frozen Prawn	6,624	2.50	16,560
Cattle Bones	1,274,411	.10	127,441
Lard	8,600	1.50	12,900
Bristles	15,982	25.00	399,550
Misc. Dry Sea Food	7,478	3.00	22,434
Preserved Meat	8,322	5.00	41,610
Civet Cat Hair	2,500	30.00	75,000
Maize	4,945,600	0.15	741,820
Musk Pods	55	4,000.00	220,000
Deer Skins	137,845	4.50	620,302
Bear Bile	50	700.000	35,000
Hempseed	77,354	0.60	46,412
Sheep Casings	13,162	7.00	92,130
Goat Skins	1,343	6.00	8,058

Total weight: 17,364,133 lbs.; total value: \$22,845,696; yielding a revenue of \$29,204.

APPENDIX 12

RABIES CONTROL

A. DOG INOCULATION AND LICENSING

	Hong Kong	Kowloon	N.T.	Total
Inoculated and licensed ...	2,576	2,677	8,407	13,660
Licensed only	1,928	973	4,461	7,362
Total	4,504	3,650	12,868	21,022

B. OBSERVATION AND STRAY ANIMALS

(ADMISSIONS AND DISPOSALS IN THE FOUR GOVERNMENT KENNELS)

<i>Observation</i>	Dogs	Cats	Monkeys	Pigs
Remaining in Kennels on 31st March, 1959	30	—	—	—
Admitted during the year ...	1,952	93	21	1
Returned to owners	1,538	48	15	1
Destroyed	387	39	6	—
Died in Kennels	16	4	—	—
Adopted by new owners ...	13	—	—	—
Remaining in Kennels on 31st March, 1960	28	2	—	—
<i>Stray</i>				
Remaining in Kennels on 31st March, 1959	2	2	—	—
Admitted during the year ...	1,118	20,988	3	—
Returned to owners	669	1	3	—
Destroyed	412	20,985	—	—
Died in Kennels	12	2	—	—
Adopted by new owners ...	20	—	—	—
Remaining in Kennels on 31st March, 1960	7	—	—	—

C. DOG CONTROL UNIT

	Total Stray Dogs Found	Found Licensed & Returned to Owners	Unlicensed & Returned to Owners after Licensing	Unclaimed & Destroyed
1st Quarter	484	372	76	36
2nd "	441	314	99	28
3rd "	529	316	135	75
4th "	172	106	51	18
Total	1,626	1,108	361	157

APPENDIX 13

SUMMARIES OF QUANTITY, VALUE AND AVERAGE WHOLESALE PRICES OF FISH MARKETED IN HONG KONG 1958/59 AND 1959/60

(a) Quantity of Fish Marketed (in piculs)

	Fresh			Salt/dried			Grand Total
	Fish	Shrimp	Sub-Total	Salt Fish	Marine Products	Sub-Total	
1958/59	619,906	37,336	657,242	78,512	1,174	79,686	736,928
1959/60	783,765	4,190	787,955	86,820	1,053	87,873	875,828
Diff.	+163,859	-33,146	+130,713	+8,308	-121	+8,187	+138,900
Percentage	+26.43%	-88.77%	+19.88%	+10.58%	-10.3%	+10.27%	+18.84%

(b) Value of Fish Marketed (\$)

	Fresh			Salt/dried			Grand Total
	Fish	Shrimp	Sub-Total	Salt Fish	Marine Products	Sub-Total	
1958/59	40,414,418	7,638,494	48,052,912	2,916,485	346,081	3,262,566	51,315,478
1959/60	51,946,569	785,117	52,731,686	3,290,007	321,282	3,611,289	56,342,975
Diff.	+11,532,151	-6,853,377	+4,678,774	+373,522	-24,799	+348,723	+5,072,497
Percentage	+28.53%	-89.72%	+9.73%	+12.8%	-7.16%	+10.68%	+9.79%

(c) Average Wholesale Fish Prices per Picul (\$)

	Fresh			Salt/dried			Overall Average Price
	Fish	Shrimp	Sub-Total	Salt Fish	Marine Products	Sub-Total	
1958/59	65.00	205.00	73.00	37.00	295.00	41.00	70.00
1959/60	66.00	187.00	67.00	38.00	305.00	41.00	64.00
Diff.	+1.00	-18.00	-6.00	+1.00	+10.00	—	-6.00
Percentage	+0.15%	-0.98%	-0.82%	+0.27%	+0.34%	Same	-0.85%

MONTHLY LANDINGS (IN PICULS) BY THE FOUR MAIN CATEGORIES OF VESSELS

Remarks: 'Foreign landings' mean the controlled landings of Japanese and Korean fish.

During the year April 1958 to March 1959 the mechanized fleet expanded from 2,287 to 2,366 vessels, an increase of 79. Figures for 1959/60 were 2,366 to 2,747 an increase of 381.

APPENDIX 15

LANDINGS OF THE MAIN SPECIES OF FISH MARKETED IN 1959/60 AND FIGURES FOR THE SAME SPECIES DURING THE PREVIOUS YEAR

English and Chinese Name	Scientific Name	Landings in Piculs		Difference	
		1958/59	1959/60	Piculs	Percentage
1. Golden Thread (Hung Sam 紅衫)	<i>Synagris virgatus</i> (Houttuyn)	115,897	150,564	+ 34,667	+ 29.9%
2. Lizard Fish (Kau Kwun 狗棍)	<i>Saurida tumbil</i> (Bloch)	35,627	54,215	+ 18,588	+ 52.2%
3. Carangoid Fish (Tse Tsai 鰺仔)	<i>Carangidae</i> sp.	26,667	49,680	+ 23,013	+ 86.3%
4. Conger Pike (Moon Sin 門蟻)	<i>Muraenesox arabicus</i> (Bloch and Schneider)	35,548	44,667	+ 9,119	+ 25.7%
5. Red Sea Bream (Poh Lap 波魷)	<i>Taius tumifrons</i> (Schlegel)	26,850	26,322	— 528	— 2%
6. Horse Head (Ma Tau 馬頭)	<i>Branchiostegus Japonicus</i> (Houttuyn)	27,610	26,076	— 1,534	— 5.6%
7. Cuttle Fish (Muk Yue 墨魚)	<i>Sepia</i> sp.	20,218	25,716	+ 5,498	+ 27.2%
8. Big Eyes (Muk Min 木棉)	<i>Priacanthus tayenus</i> (Richardson)	21,918	23,832	+ 1,914	+ 8.7%
9. Red Snapper (Hung Yue 紅魚)	<i>Lutjanus erythropterus</i>	20,439	22,789	+ 2,350	+ 11.5%
10. Croaker (Wak Yue 魷魚)	<i>Argyrosomus</i> sp.	17,315	21,526	+ 4,211	+ 24.3%
11. Red Goat Fish (Hung Sin 紅線)	<i>Upeneus moluccensis</i> (Bleeker)	11,029	21,260	+ 10,231	+ 92.8%
12. Hair Tail (Taai Yue 牙帶)	<i>Trichiurus haumela</i> (Forsk.)	17,748	20,205	+ 2,457	+ 13.8%
13. Shark (Sah Yue 沙魚)	<i>Elasmobranchs</i>	14,234	20,766	+ 6,532	+ 45.9%
14. Grouper (Shek Paan 石斑)	<i>Serranus brunneus</i> (Bloch)	13,236	19,664	+ 6,428	+ 48.6%
15. Mackerel Scad (Tse Yue 鰺魚)	<i>Decapterus lajang</i> (Bleeker)	12,809	17,954	+ 5,145	+ 40.2%
16. Mackerel (Kau Yue 鰺魚)	<i>Cybbium</i> sp.	16,353	18,657	+ 2,304	+ 14.1%
17. Squid (Yau Yue 柔魚)	<i>Ommastrephes</i> (spp.)	7,238	15,972	+ 8,734	+ 12.07%
18. Yellow Croaker (Wong Fah Yue 黃花)	<i>Pseudosciaena crocea</i> (Richardson)	12,030	14,950	+ 2,920	+ 24.3%
19. Melon Seed (Kwa Vat 瓜核)	<i>Psenopsis anomala</i> (Schlegel)	9,824	13,383	+ 3,559	+ 36.2%
20. All Other Species 其他種類		274,338	267,630	— 6,708	
Total		736,928	875,828	+ 138,900	+ 18.84%

ESTIMATED NUMBER OF FISHING JUNKS (INCLUDING MECHANIZED VESSELS) AND
OPERATIVE FISHERFOLK IN THE COLONY DURING 1959 TO 1960

Type of Vessel	Aberdeen		Shau Kei Wan		Cheung Chau		Tai O		Tai Po		Tap Mun		Kat O		Stanley		Castle Peak		Sai Kung		Sha Tau Kok		Yau Ma Tei		Fishing Companies		Total	
	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk	Ves-sels	Fisher-folk		
<i>Liners</i>																												
Big Long Liner ...	5	225	38	1,710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	1,935	
Medium Long Liner ...	21	336	52	832	5	80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	90	1,440	
Small Long Liner ...	506	3,542	295	2,065	94	638	150	1,050	120	840	—	—	—	—	6	42	61	427	85	595	1	7	34	238	—	1,352	9,464	
Hand Liner ...	147	735	385	1,925	73	365	—	—	—	—	95	475	50	250	75	375	375	1,875	63	315	85	425	29	145	—	1,450	7,250	
<i>Seiners</i>																												
Ku P'eng ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Pa T'eng ...	8	224	—	—	3	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26	728	
Purse Seiner ...	366	3,294	195	1,755	146	1,314	4	36	153	1,377	77	693	120	1,080	106	954	127	1,143	119	1,071	85	765	116	1,044	—	1,614	14,526	
<i>Trawlers</i>																												
Company Trawler ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	315	
Deep Sea Trawler ...	66	1,320	135	2,700	26	520	—	—	—	—	—	—	—	—	—	—	80	1,600	—	—	—	—	—	—	22	440	329	6,580
Inshore Trawler ...	218	3,270	102	1,530	—	—	1	15	—	—	—	—	—	—	—	—	273	4,095	—	—	—	—	—	—	50	750	644	9,660
Shrimp Trawler ...	430	2,580	123	738	39	224	24	144	64	384	—	—	—	—	—	—	237	1,422	6	36	—	—	—	—	208	1,248	1,131	6,786
<i>Gill Netters</i>																												
Gill Netter ...	377	3,016	59	472	60	480	218	1,744	—	—	—	—	—	—	—	—	550	4,400	80	640	—	—	366	2,928	—	1,710	13,680	
Hok Lo T'eng ...	84	672	10	80	147	1,176	—	—	521	4,168	—	—	—	—	—	—	12	96	34	272	115	920	61	488	—	984	7,872	
<i>Fish Collectors</i> ...	3	24	11	88	—	—	—	—	—	—	—	—	—	—	5	40	4	32	—	—	—	—	—	—	—	23	184	
<i>Miscellaneous</i> ...	98	490	80	400	—	—	—	—	72	360	23	115	—	—	3	15	457	2,285	55	275	5	25	—	—	—	793	3,965	
Total ...	2,329	19,728	1,485	14,295	593	4,911	470	3,354	930	7,129	195	1,283	170	1,330	195	1,426	2,176	17,375	454	3,396	291	2,142	901	7,701	315	10,210	84,385	

APPENDIX 17

HONG KONG MECHANIZED FISHING VESSELS AND
CHANGES DURING 1959/60

	Type of Vessel	Total end of March 1959	Changes		Total end of March, 1960
			Increase	Decrease	
Trawlers	Company operated British registered (steel) trawlers	9	—	1	8
	Company operated Primitive & Japanese type trawlers	11	3	—	14
	Native type deep sea trawlers	77	11	—	88
	Shrimp trawlers	303	58	20	341
	Native type inshore trawlers... ..	216	38	6	248
Liners	Native type deep sea long liners	68	6	29	45
	Native type inshore long liners	804	231	50	985
Seiners	Native type inshore purse seiners	643	80	42	681
	Pa T'eng... ..	47	—	5	42
	Ku Peng T'eng... ..	12	—	12	—
Misc.	Native type inshore gill netters	93	122	4	211
Collectors	Native type fish collectors	83	4	3	84
Total... ..		2,366	553	172	2,747

IMPORTS AND EXPORTS OF TIMBERS AND FUEL FOR THE YEAR ENDED 31ST DECEMBER, 1959

Category	Gross Imports		Gross Exports		Net Imports		Percentage by value of gross imports or exports from or to different sources or destinations	
	Hundred of Cu. ft.	Value \$	Hundred of Cu. ft.	Value \$	Hundred of Cu. ft.	Value \$	Imports	Exports
TIMBER								
(A) Round :								
1. Teak	2,496	3,110,916	—	—	2,496	3,110,916	North Borneo	56% U.S.A. ... 46%
2. Primary Hardwood ...	1,895	1,100,075	—	—	1,895	1,100,075	Sarawak	26% United Kingdom ... 28%
3. Secondary Hardwood ...	20,257	6,492,824	—	—	20,257	6,492,824	China	5% Australia ... 16%
4. Light Hardwood ...	79,459	23,296,994	—	—	79,459	23,296,994	Burma	4% Other Destina- tions ... 10%
5. Softwood (conifer) ...	1,330	641,682	—	—	1,330	641,682	Thailand	5%
6. Timber for match-making* ...	412	125,099	—	—	412	125,099	Other Sources,	5%
7. Poles, Pilings & Posts ...	989	987,046	—	—	989	987,046		
8. Decorative Wood ...								
(B) Sawn :								
9. Teak	6,438	9,592,634	4	10,082	6,434	9,582,552		
10. Primary Hardwood ...	38	45,385	—	—	38	45,385		
11. Secondary Hardwood ...	204	55,708	568	420,319	3,504	†		
12. Light Hardwood ...	7,620	2,723,403	4,116	3,991,069	6,621	2,387,860		
13. Softwood	6,681	2,422,730	60	34,879	218	373,674		
14. Decorative Wood ...	218	373,674	—	—				
Total Timber	128,037	50,968,170	4,748	4,456,340	123,653	48,144,107		
FUEL								
(A) Firewood	Cwt.	Value \$	Cwt.	Value \$	Cwt.	Value \$	North Borneo 37% Brunei ... 10% Macau... ..100%	
	2,872,767	9,983,634	60,644	134,341	2,812,123	9,849,293	China ... 25% Sarawak ... 3% Other Sources 1%	
(B) Charcoal	1,184,412	12,897,841	—	—	1,184,412	12,897,841	Malaya ... 86% S. Vietnam ... 2%	
Total Fuel	4,057,179	22,881,475	60,644	134,341	3,996,535	22,747,134	China ... 8% Other Sources 2% Cambodia ... 2%	

* Though there are match factories in the Colony, no figures are known.

† Figure for value not available.

APPENDIX 20—*Contd.*

October, 1959 :

- (a) The Preparation of Land for Cool Season Vegetable Crops.
- (b) Silviculture.
- (c) Pond Fish Culture.
- (d) Agricultural Credit Facilities—A Story of Success.

November, 1959 :

- (a) Advice on Preparation of Exhibits for the Agricultural Show.
- (b) The Second Paddy Crop—Its Harvesting, Threshing and Storage.
- (c) The Stock Farmers' Month.
- (d) The Management of Forestry Lots.
- (e) The Cultivation of Edible Oysters.

December, 1959 :

- (a) The Vegetable Marketing Organization.
- (b) Keep Hong Kong Green—An Appeal by Forestry.
- (c) Further Advice and Discussion on Preparation of Classes of Exhibits for the Agricultural Show.
- (d) The Stock Farmers' Month.

January, 1960 :

- (a) Preventing Hill Fires.
- (b) Final Instructions to Exhibitors at the Agricultural Show and General Invitation to Visitors.
- (c) Show Report —A Roving Reporter Speaks to People at the Agricultural Show.
- (d) Land Development.
- (e) The Stock Farmers' Month.

February, 1960 :

- (a) The Propagation of Fruit Trees.
- (b) Fishermen Training Classes.
- (c) Preparations for the First Paddy Crop.
- (d) The Value of Afforestation.

March, 1960 :

- (a) Orchard Management and the Care of Fruit Trees.
- (b) Water and Its Place on the Farm.
- (c) Seed Saving and Selection from Winter Vegetables.
- (d) The Stock Farmers' Month.

APPENDIX 21

FILM SHOWS

LIST OF FILMS AVAILABLE

<i>Film</i>	<i>Showing Time</i>	<i>Remarks</i>
1. Agricultural Show 1955	30 mins.	Color
2. Agricultural Show 1956	32 mins.	Color
3. Agricultural Show 1958	32 mins.	Color
4. Agricultural Show 1959 A	10 mins.	Color
B	30 mins.	Color
C	10 mins.	Color
D	10 mins.	Color
5. Agricultural Show 1960	20 mins.	Color
6. Yuen Ling Vessel No. 2	35 mins.	Color
7. Fisheries Industry in H.K.	32 mins.	Color
8. A.F.F.D. Au Tau Fish Pond	5 mins.	Color
9. Dragon Boat Races 1958	10 mins.	Color
10. H.K. Fisheries Exhibition 1955	16 mins.	Color
11. Danger of Using Dynamite	15 mins.	Color
12. Dissection of whale in Aberdeen	8 mins.	Color
13. Gathering of Fishermen in Chinese New Year 1959	8 mins.	Color
14. Gathering of Fishermen in Chinese New Year 1957/58	10 mins.	Color
15. Veterinary Work	10 mins.	B & W
16. Poultry Breeds	10 mins.	B & W
17. Examination of Poultry Diseases	10 mins.	Color
18. Exotic Pigs in H.K.	10 mins.	Color
19. Meat and Bone Meal	20 mins.	Color
20. Tree Planting Day 1958	10 mins.	Color
21. Forestry Activities*... ..	32 mins.	Color
22. Forestry for the Future	32 mins.	Color
23. Paddy Culture in H.K.	24 mins.	Color
24. Uses of Insecticides	16 mins.	Color
25. Irrigation and Drainage	20 mins.	Color
26. Flood Damage, 1957	10 mins.	Color
27. D.A.F.F. Activities	32 mins.	B & W
28. Agricultural Activities 1958	32 mins.	Color
29. Agricultural Activities 1957	32 mins.	Color
30. H.K. Agriculture 1956	32 mins.	Color
31. Governor's Visits to the Establishments of A.F.F.D. 1955	15 mins.	Color
32. Governor's Visits to the Establishments of A.F.F.D. 1956	24 mins.	Color
33. Governor's Visits to the Establishments of A.F.F.D. 1957	12 mins.	Color

APPENDIX 22

LIST OF PAMPHLETS AND LEAFLETS AVAILABLE FROM A.F.F.D.

I. *Agricultural Pamphlets :*

- (i) Hints on Handling Insecticides and Sprayers.
- (ii) Preparation and Sowing of the Paddy Seed Nurseries.
- (iii) Sowing of Vegetable Seeds.
- (iv) Information on Some of the More Effective Insecticides and their Correct Use
- (v) The Handling of Dangerous Insecticides.
- (vi) How to Transplant Fruit Trees.
- (vii) Control of the Rice Stem Borer.
- (viii) Compost Making.
- (ix) Management of the Paddy Nursery.

II. (a) *Animal Husbandry Pamphlets :*

- (i) Cleaning and Disinfecting Poultry Houses and Equipment.

(b) *Animal Disease Leaflets :*

- (i) Infectious Laryngo-Tracheitis.
- (ii) Rinderpest.
- (iii) Foot and Mouth Disease.
- (iv) Virus Pneumonia of Pigs.
- (v) Intestinal Worms of Pigs.
- (vi) Brucellosis of Swine.
- (vii) Swine Fever.
- (viii) Newcastle Disease of Fowls.

III. *Forestry Pamphlets :*

- (i) Control of the Pine Looper Caterpillar.
- (ii) Tree Seed Collection.

Afforested Land	...	...	12,000.00 acres
Fish Pond	...	...	592.58 acres
Grand Total	...	...	45,818.21 acres

APPENDIX 24

VISITORS TO THE DEPARTMENT

During the year the following visitors were received by the Department. Discussions were held in all cases and, in many cases, were followed by conducted tours to view departmental activities throughout the New Territories:

- W. N. SCOTT, Agricultural Adviser, Brunei.
- W. A. GUNN, 35 Junction Road, Clayfield, Brisbane.
- G. E. MULGRUE, Regional Adviser on Information, F.A.O., Bangkok.
- K. S. MCINTOSH, Health Dept., Canberra.
- R. B. GRIFFITHS, F.A.O., Rangoon, Burma.
- L. MATSSON, UNESCO, Djakarta, Indonesia.
- F. S. MEYER, Miami Beach, Florida, U.S.A.
- L. GOLDSTEIN, Liberty Fish Co., Philadelphia, U.S.A.
- Norio FUJINAMI, Naval Architect, F.A.O., Rome, Italy.
- Lt. MYO Tint, Ministry of Defence, Rangoon, Burma.
- Col. MC Shein, Ministry of Defence, Rangoon, Burma.
- Capt. HTUN Aung Kyaw, Ministry of Defence, Rangoon, Burma.
- Prabhas NITAYACHIN, Department of Fisheries, Bangkok, Thailand.
- K. H. ALIKUNHI, Research Officer, Central Inland Fisheries Station, Cuttack, India.
- S. W. LING, Fish Culturist, F.A.O., Bangkok, Thailand.
- K. J. WHITE, Regional Forest Officer, New Guinea.
- A. C. FISKEN, Victoria, Australia.
- H. KAMEMOTO, Professor, Dept. of Horticulture, University of Hawaii.
- A. HAMILTON, Professor, Dept. of Horticulture, University of Hawaii.
- P. THIURN, USOM Phnom Penh, Cambodia.
- TAN You Hao, USOM Phnom Penh, Cambodia.
- Earl KEUFFMAN, USOM Phnom Penh, Cambodia.
- Robert P. OWEN, Entomologist, Koror, Caroline Is.
- N. PARTHASARATHY, F.A.O., Bangkok, Thailand.
- AUNG Din, Regional Forestry Officer, F.A.O.
- R. TENNANT, Director General of Agriculture, New Zealand.
- C. W. CHANG, F.A.O. Regional Office, Bangkok, Thailand.
- CHO Chak Nam, Veterinary Dept., Singapore.
- Ole J. HEGGEM, I.C.A. c/o U.S. Embassy, Manila.
- Deogracias J. CABRERA, Bureau of Animal Industry, Manila.
- A. E. SANTANGELO, Congressman, New York, U.S.A.
- R. H. MICHEL, Congressman, Illinois, U.S.A.

APPENDIX 24—*Contd.*

- H. Carl ANDERSEN, Congressman, Minnesota, U.S.A.
G. POPE, Washington, D.C., U.S.A.
T. M. LOUDON, East Africa High Commission, Nairobi.
W. KLATT, Economic Adviser in the U.K. Foreign Office.
E. A. EICHORN, F.A.O., Rome, Italy.
W. R. COCKRILL, F.A.O., Rome, Italy.
N. KONNERUP, U.S.D.A. Washington, D.C.
Elizabeth KUNSTI, F.A.O., Rome, Italy.
E. SCHULER, Morrison, Ill., U.S.A.
R. SHAMPAYNE, Rockford, Ill., U.S.A.
R. HUCK, Rockfalls, Ill., U.S.A.
F. Everett JASLIN, Erie, Ill., U.S.A.
C. OLSSON, Prophetstown, Ill., U.S.A.
H. E. SCHWENK, Polo, Ill., U.S.A.
H. DEMPSEY, Belvidere, Ill., U.S.A.
T. NOWERS, Atkinson, Ill., U.S.A.
A. LEWIS, Clinton, Iowa, U.S.A.
J. BROOKS, Ames, Iowa, U.S.A.
H. J. MARTENS, Atkinson, Ill., U.S.A.
M. A. FLETCHER, Singapore.
L. R. DONALDSON, Prof. of Fisheries & Director of Laboratory of Radiation Biology,
University of Washington, Seattle, Washington, U.S.A.
C. W. JENKINSON, Adelaide.
P. F. MARTIN, Veterinary Service, Vientiane, Laos.
O. F. WRIGHT, Kuching, Sarawak.
A. RAFYI, Director, Razi Vaccine Institute, Iran.
M. KAWEH, Tehran, Iran.
R. N. HARTTAY, Department of Agriculture, Fiji.
W. M. SANDS, USOM—Cambodia Forestry Adviser.
V. S. de la CRUZ, c/o Parks & Wildlife Office, Manila, Philippines.
M. N. REYES, Bureau of Forestry, Manila, Philippines.
E. Arnot ROBERTSON, B.B.C., London.
H. E. TURNER, 98 Heath Street, London N.W.3.
Keith H. HILL, Franklin Traders Ltd. 118 King William Street, Adelaide.
S. BJELKELOV, Director, Metalock (Far East) Ltd. H.K., the Swedish Trading Co.,
Ltd., H.K., Singapore.

APPENDIX 24—*Contd.*

- B. H. MCAUSLAN, Far Eastern Representative, W. H. Dorman & Co., Ltd., Diesel Engines, Stafford, England.
- H. KUMMERMAN, Managing Director, Messrs. 'MacGregor-Comarain', 96 bis, Rue du Ranelagh, Paris, France.
- CHIN Phui Kong, Asst. Fisheries Officer, Department of Agriculture, Jesselton, N. Borneo.
- P. A. LUSYNE, Technology Branch, F.A.O. Fisheries Division.
- Y. T. MAO, F.A.O. Plant Production Division, Rome, Italy.
- M. L. BARNETT, University of Wisconsin, Madison, Wis., U.S.A.
- Khun VICHITRAHANAKARN, Under Secretary of State, Ministry of Agriculture, Thailand.
- J. DOUGLAS, A.B.C., 264 Pitt St., Sydney, Australia.
- A. D. HAMIDOO, Department of Agriculture, State of Brunei.
- W. J. DIXON, F.A.O. Representative, Ministry of Agriculture, Cambodia.
- Kinjiro JINOZA, Department of Economics, Government of Rezakgas.
- Chuyo TAMINATO, Department of Economics, Government of Rezakgas.
- G. HARM, Suva, Fiji.
- N. R. SPENCER, IVS/USOM, Saigon, Vietnam.
- Charles QUANT, Gweanyunyuyold, Rold, N. Wales.
- P. J. QUIN, Lebedicla Estates, North Transvaal, South Africa.
- Harold J. COOLIDGE, U.S. National Academy of Sciences, P.S.B.
- James C. BATLEY, British Historian.
- TRAN-VAN-TRI, 76 Ngo Dinh - Khoi, Saigon, Chief of Water Resources Exploitation
- D. T. E. A. de FONSEKA, Director of Fisheries, Ceylon.
- SOONG Min Kong, Director of Fisheries, Federation of Malaya.
- Miss N. WRIGHT, 'Cathay Film Services'.
- Imm. VICELAND, Zoological Laboratory, University of Oslo, Norway.
- Albert R. M. C. ALEXANDER, Messrs. 'Mr. Sam Shrimp Co.' Tarripur, Florida, U.S.A.
- Jesse RAMOS, Representative of 'Shell Company, Ltd'.
- T. UBaidILLAH, Distribution & Marketing Officer, H.Q., Fisheries Department Penang.
- J. E. V. JECKINS, The British Council.
- Stantion H. PATTY, Reporter of the 'Seattle Times'.
- J. A. TUBB, F.A.O. Regional Fisheries Officer for South East Asia.
- Tatsuo SAITOH and Akira KEKUCHI, Officers of the Fisheries Statistics Section, Ministry of Agriculture and Forestry, Japan.

APPENDIX 25

LIST OF SENIOR STAFF AT 31ST MARCH, 1960

Administration

Director	W. J. BLACKIE, M.Sc. (N.Z.); F.R.I.C.; F.N.Z.I.C.
Assistant Director	E. H. NICHOLS, B.Sc. (Dunelm); Dip. Agr. (Cantab.); A.I.C.T.A.
Secretary/Accountant	A. BOYD-COWAN.
Assistant Accountant	C. G. ESTRADA.
Assistant Secretary	M. C. CUNNINGHAM.

Agriculture Division

Agricultural Officer	<i>Vacant.</i>
Senior Extension Officer (A.A.O.)	L. F. WONG, B.Sc. (Lingnan).
Agronomist (A.A.O.)	P. L. SIAK, B.Sc. (Lingnan).
Market Garden Research Officer (A.A.O.)	S. Y. CHAN, B.Sc. (Lingnan).
Fruit Research Officer (A.A.O.)	S. K. LO, B.Sc. (Lingnan).
Pest and Disease Control Officer (A.A.O.)	P. Y. SO, B.Sc. (Lingnan).

Animal Industry Division

Senior Veterinary Officer	D. M. CORBETT, M.R.C.V.S., M.R.S.H.
Veterinary Officer	J. M. RIDDELL-SWAN, B.Sc. (Edin.); M.R.C.V.S., M.R.S.H.
Senior Livestock Extension Officer (A.A.O.)	Y. T. MACK, B.Sc. (Lingnan).
Senior Livestock Research Officer (A.A.O.)	H. F. YUNG, B.Sc. (Lingnan).
Senior Livestock Supervisor (Regulatory)	W. J. SILVEY.

Forestry Division

Forestry Officer	P. A. DALEY, B.Sc. (Wales).
Senior Forestry Research Officer (A. For. O.)	D. C. SHEN, B.Sc. (National Central).
Senior Forestry Supervisor (Crown Lands and General)	R. J. V. EVEREST.
Senior Forestry Extension Officer (S.F.S.)	P. A. KENNEDY.

Fisheries Division

Fisheries Officer	W. D. ORCHARD.
Senior Fisheries Culture Officer (A. Fish. O.)	Y. S. YU, B.Sc. (Yenching).
Senior Marine Fisheries Officer (A. Fish. O.)	L. S. AU.

Credit Service

Senior Credit Officer (A.A.O.)	T. S. WOO, B.Sc. (Lingnan).
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Education and Information Service

Rural Education Officer (A.A.O.)	Y. W. TAAM, B.Sc. (Lingnan).
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Land Utilization and Soil Survey Service

Agricultural Economist (A.A.O.)	C. T. WONG, B.Sc. (Kwangsi), D.T.A.
Senior Soils Technician	Y. C. LIN, B.Sc. (Taiwan).

A.A.O.	= Assistant Agricultural Officer.
A. For. O.	= Assistant Forestry Officer.
A. Fish. O.	= Assistant Fisheries Officer.
S.F.S.	= Senior Forestry Supervisor.

